

No. 0000016



99529

FINAL

REMEDIAL ACTION MASTER PLAN

SKINNER LANDFILL SITE

01-5V73.0

May 18, 1983

TABLE OF CONTENTS  
SKINNER LANDFILL  
01-5V73.0

	<u>Page</u>
1.0 EXECUTIVE SUMMARY	1-1
1.1 Purpose	1-1
1.2 Site Description	1-1
1.3 Problem Statement	1-1
1.4 Limitations	1-2
1.4.1 Data Limitations	1-2
1.4.2 Study Limitations	1-3
1.5 Initial Remedial Measures	1-3
1.6 Remedial Investigation/Feasibility Study	1-3
1.6.1 Preparation of Work Plan	1-4
1.6.2 Site Definition Activities	1-4
1.6.3 Detailed Site Characterization Studies	1-4
1.6.4 Remedial Investigation Report	1-4
1.6.5 Evaluation of Remedial Action Alternatives	1-5
1.6.6 Alternative Remedial Actions Feasibility Report	1-5
1.6.7 Conceptual Design	1-5
1.7 Cost Estimate and Time Schedule	1-5
2.0 DATA EVALUATION	
2.1 Objective	2-1
2.2 Background	2-1
2.2.1 Site Description	2-1
2.2.2 Site History	2-1
2.2.3 Remedial Actions to Date	2-5
2.2.4 Chronology	2-5
2.3 Hazardous Materials Characterization	2-5
2.3.1 Generators and Transporters	2-5
2.3.2 Materials - Quantitative	2-6
2.3.3 Materials - Qualitative	2-6
2.4 Environmental Setting	2-9
2.4.1 Physiography and Topography	2-9
2.4.2 Geology	2-9
2.4.3 Hydrology	2-12
2.4.4 Geohydrology	2-12
2.4.5 Air Quality	2-15
2.4.6 Ecology	2-15
2.4.7 Socioeconomics	2-18
2.5 Assessment of Potential Impacts	2-18
2.5.1 Public Health and Safety	2-18
2.5.2 Environment	2-19
2.5.3 Socioeconomics	2-19
2.6 Data Limitations	2-19

	<u>Page</u>
3.0 REMEDIAL ACTION PLANNING	3-1
3.1 Remedial Action Plan	3-1
3.1.1 Overall Approach to Site	3-1
3.1.2 Master Site Schedule	3-1
3.2 Initial Remedial Measures	3-1
3.2.1 Objective	3-1
3.2.2 Recommended Actions	3-3
3.2.3 Cost Estimate and Time Schedule	3-5
3.3 Remedial Investigation/Feasibility Study	3-5
3.3.1 Scope of Work	3-5
3.3.2 Remedial Investigation/Feasibility	3-20
Study Estimated Costs/Time	3-20
Schedule/Deliverables	3-20
3.4 Source Control Remedial Actions	3-24
3.4.1 Objective	3-24
3.4.2 Remedial Action Alternatives	3-25
3.5 Offsite Remedial Actions	3-25
3.5.1 Objective	3-25
3.5.2 Remedial Action Alternatives	3-25
4.0 COMMUNITY RELATIONS ASSESSMENT	4-1
4.1 Community Relations Background	4-1
4.1.1 History of Community Relations	4-1
Activities	4-1
4.1.2 Community Relations Issues	4-2
4.1.3 Community Relations Participants	4-3
4.2 Community Relations Objectives and	4-4
Techniques	4-4
4.2.1 Community Relations Objectives	4-4
4.2.2 Community Relations Techniques	4-4
APPENDIX A	SITE VISIT MEMORANDUM AND PHOTO LOG
APPENDIX B	SITE CHRONOLOGY
APPENDIX C	BORING LOGS
APPENDIX D	FEASIBILITY STUDY; ACTIVITIES 5-8

## LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1-1	IRM Cost Estimate and Time Schedule	1-9
1-2	RI/FS Cost Estimate and Time Schedule	1-10
2-1	Vicinity Map	2-2
2-2	Location Map	2-3
2-3	Site Map	2-4
2-4	Locations of Known Residential Wells	2-10
2-5	Approximate Location of Borings Drilled in Lagoon Area	2-13
2-6	Location of Bulk Tanks Containing Detected Organics	2-17
2-7	Area of Known Buried Drums	2-21
3-1	Master Site Schedule	3-2
3-2	Location of Gate and Warning Sign	3-4
3-3	Approximate Location of Inhabitants' Residence	3-6
3-4	IRM Cost Estimate and Schedule	3-7
3-5	Proposed Surface Water and Sediment Sampling Locations	3-15
3-6	Time Schedule - RI/FS Activities	3-23

## LIST OF TABLES

<u>Tables</u>		<u>Page</u>
2-1	Summary of Sampling Events	2-7
2-2	Laboratory Results - Pit Ooze and Barrel Liquid	2-8
2-3	Residential Well Logs	2-11
2-4	Laboratory Results - Leachate Puddle	2-14
2-5	Groundwater Analyses	2-16
3-1	Priority Pollutants that Accumulate Biota	3-18
3-2	Estimated Costs - RI/FS Activities	3-21

GLT420/4

## 1.0 EXECUTIVE SUMMARY

This document is a Remedial Action Master Plan (RAMP) for the Skinner Landfill site located near West Chester, Ohio. A RAMP is a plan for undertaking remedial investigation activities and remedial actions in response to a hazardous substance release, or a substantial threat of release, into the environment. It is based upon the National Oil and Hazardous Substances Contingency Plan (NCP) promulgated by the Environmental Protection Agency (EPA) on July 16, 1982 (47 FR 31180-31243).

This document is based on readily available existing data. No new data were generated during preparation of this RAMP.

### 1.1 PURPOSE

The specific purpose of this RAMP is to define the scope of remedial investigation activities or remedial actions for the Skinner Landfill site along with a schedule of implementation. The RAMP provides cost estimates for each proposed activity and identifies data limitations, community relations strategies, and possible problems that may be encountered during project implementation.

### 1.2 SITE DESCRIPTION

Skinner Landfill is a 70-acre unpermitted sanitary landfill located 1 mile northeast of the Town of West Chester, Ohio. The surrounding area is primarily agricultural and wooded lands with a subdivision to the west. The site is owned by Mrs. Elsa Skinner. The site is not visible from the access point off of Cincinnati-Dayton Road.

### 1.3 PROBLEM STATEMENT

Industrial chemicals from the Chem-Dyne Corporation have reportedly been dumped in an old lagoon area in the landfill. The dumped material consists of drums, broken drums and free standing liquid. The lagoon area was covered with soil from the landfill in 1976 and the limits of the old chemical dump are not presently known. Samples of these chemicals were found to contain toxic concentrations of hazardous chemical substances. Groundwater contamination is a possibility.

Leachate has been reported seeping from the bank in the area of the old lagoon. Two streams flowing toward the Town of West Chester traverse the base of the landfill. Surface water contamination is a possibility.

Numerous storage tanks and 55-gallon drums are scattered throughout the landfill. The contents of these tanks and drums are unknown. During the site visit, instrument read-

ings in two of the tanks registered high concentrations of organics. It is not known if there are buried drums in areas other than the lagoon area.

Six standing water ponds lie along the western boundary of the landfill. Based on visual inspection, these ponds do not appear to be contaminated. Trucks have been seen backing up to these ponds indicating possible dumping.

#### 1.4 LIMITATIONS

Limitations considered particularly relevant to the Skinner Landfill site follow.

##### 1.4.1 Data Limitations

- o The extent of the original lagoon (where chemical dumping occurred) is not defined.
- o Results of the laboratory analyses of samples known to have been collected were not readily available at the time of RAMP preparation.
- o Borings drilled in the lagoon area were too shallow for geologic analysis of subsurface conditions and soil materials. Boring elevations and locations were not recorded.
- o The contents of the scattered drums and storage tanks onsite are unknown.
- o The extent of seepage from these drums and tanks into the surface soils is unknown.
- o No data were readily available to determine the water quality and potential sediment contamination for the six water ponds onsite and the two intermittent streams flowing around the base of the landfill.
- o Only limited sample data were available for private wells in the area.
- o Due to the size and complexity of the site layout, current aerial photography is needed for analysis of possible problem areas at the site.
- o Due to the possibility of channelized groundwater flow, contaminated groundwater may be restricted to narrow zones. Additional monitoring wells are needed for further analysis.

- o Topographic data are limited to USGS quadrangle maps of the area. These maps have a 10-foot contour interval where a smaller contour interval is needed for analysis of surface drainage and runoff.

#### 1.4.2 Study Limitations

- o The RAMP does not recommend specific remedial actions due to a lack of information necessary to conduct a feasibility study for them.
- o Costs provided are Order-of-Magnitude only. This type of estimate is defined by the American Association of Cost Engineers as follows: "An approximate estimate made without detailed engineering data. Examples include: an estimate from cost-capacity curves, an estimate using scale-up or scale-down factors, and an approximate ratio estimate. It is expected that an estimate of this type will be accurate within +50 percent and -30 percent."
- o The RAMP is basically a planning document with tasks and subtasks suggested as minimum efforts to accomplish its objectives.
- o The RAMP budget and development schedule did not permit a complete and exhaustive consideration of all remedial planning activities.

#### 1.5 INITIAL REMEDIAL MEASURES

The purpose of initial remedial measures (IRM's) at the Skinner Landfill site is to reduce imminent hazards to public health associated with the presence of hazardous wastes contained onsite.

The IRM's identified for the Skinner Landfill site are:

- o Installing a gate and placement of warning signs
- o Warning to people living in site area
- o Issuance of an advisory notice

#### 1.6 REMEDIAL INVESTIGATION/FEASIBILITY STUDY

Before alternatives for remedial actions can be analyzed, sufficient information must be available to evaluate them. Gathering of this information will be completed in a remedial investigation/feasibility study (RI/FS).



#### 1.6.1 Preparation of Work Plan

This activity will refine the scope of work for the RI/FS discussed in this RAMP. It will develop a schedule and work plan to implement the recommended RI/FS activities.

The tasks for this activity are:

- o Assemble project team.
- o Gather and review background data.
- o Prepare and submit draft work plan and final work plan.

#### 1.6.2 Site Definition Activities

This activity will define the physical characteristics of the site and establish onsite health and safety facilities for use by all field personnel.

The following tasks are recommended:

- o Prepare a site health and safety assessment.
- o Establish site safety facilities.
- o Conduct site surveying and mapping program.
- o Prepare quality assurance plan.
- o Conduct sampling program for drums and storage tanks.
- o Perform magnetometer survey.
- o Update work plan.

#### 1.6.3 Detailed Site Characterization Studies

Currently, available data on the Skinner Landfill site are insufficient to allow the selection, screening, and feasibility study of remedial action alternatives. The following proposed remedial investigations will result in detailed data to meet the above objectives for the site.

- o Installation of additional groundwater monitoring wells
- o Groundwater sampling and analysis
- o Residential well sampling and analysis
- o Surface water and sediment sampling and analysis
- o Soil sampling and analysis
- o Biological studies

#### 1.6.4 Remedial Investigation Report

All data collected and summarized during activities 1.6.1 through 1.6.3 will be evaluated to determine whether or not a hazard to human health or welfare or the environment exists. A final report will then be prepared.

#### 1.6.5 Evaluation of Remedial Action Alternatives

This activity will evaluate the alternative remedial actions on the basis of environmental, engineering and economic criteria and select an alternative or combination of alternatives for conceptual design and implementation.

The tasks necessary to complete this activity are contained in the following activities:

- o Develop listing of potential alternatives
- o Develop screening criteria
- o Additional engineering studies
- o Technology assessment
- o Refine alternatives
- o Environmental assessment
- o Engineering assessment
- o Economic assessment
- o Comparative ranking of alternatives
- o Comparative ranking review meetings

#### 1.6.6 Alternative Remedial Actions Feasibility Report

A report summarizing data developed during the evaluation of alternatives and documenting the alternative remedial actions assessment process will be prepared. On the basis of the entire evaluation process, one alternative or a combination of alternatives will be recommended for consideration in the conceptual design.

#### 1.6.7 Conceptual Design

The major consideration of this activity will be to prepare a conceptual design consistent with the objectives of the proposed remedial actions; it is intended to be sufficient to prepare an Order-of-Magnitude level cost estimate.

#### 1.7 COST ESTIMATE AND TIME SCHEDULE

The cost estimates and time schedules for the IRM's and the remedial investigation activities are shown in Figures 1-1 and 1-2. The task descriptions for each IRM and RI/FS activity define the basis for the associated cost estimates.

GLT420/15

Figure 1-1  
IRM COST ESTIMATE AND SCHEDULE  
SKINNER LANDFILL  
W65173.00

IRM's	ESTIMATED COST		SCHEDULE OF WEEKS									
	Low(\$)	High(\$)	1	2	3	4	5	6	7	8	9	10
Gate and Warning Signs	\$1,800	\$2,500	----	_____								
Warning to Inhabitants	200	300	_____									
Press Release	<u>1,300</u>	<u>2,000</u>		_____								
TOTAL	\$3,300	\$4,800										

---- Contract preparation

GLT420/13-1

Figure 1-2  
RI/FS COST ESTIMATE AND SCHEDULE  
SKINNER LANDFILL  
W65173.00

Task	ESTIMATED COST		SCHEDULE (MONTHS ELAPSED)						
	Low	High	0	3	6	9	12	15	18
1. Work Plan Preparation	\$ 12,300	\$ 18,000	----						
2. Site Definition Activities	165,500	248,500		-----					
3. Detailed Site Characterization Studies	297,300	446,00		-----					
4. Remedial Investigation Report	12,500	18,700				-----			
5. Evaluation of Remedial Action Alternatives	28,000	42,000					-----		
6. Alternative Remedial Action Feasibility Report	13,500	20,300						-----	
7. Conceptual Design	28,800	45,200							-----
8. Project Management	<u>23,100</u>	<u>35,200</u>	-----						
TOTAL	581,000	873,900							

GLT420/19

## 2.0 DATA EVALUATION

### 2.1 OBJECTIVE

This section presents available technical data and nontechnical information on the Skinner Landfill site and its immediate surroundings. It also summarizes potential impacts resulting from the landfill site contamination based on available information. Evaluation of readily available existing data determines data limitations and the need for remedial investigations and measures.

### 2.2 BACKGROUND

#### 2.2.1 Site Description

The Skinner Landfill is a sanitary landfill located approximately 1 mile northeast of the Town of West Chester in Union Township, Butler County, Ohio (Figure 2-1). See Figure 2-2 for a location map of the landfill site. The landfill is approximately 50 feet higher than the surrounding terrain and consists of 50 to 70 acres of land; the boundaries are not clearly distinguishable by visual inspection. The initial owners of the landfill were Mr. and Mrs. Albert Skinner and their sons; the present owner is Elsa Skinner, wife of Albert Skinner. The property is bounded on the north and east by wooded land, the south by wooded and agricultural land, and on the west by the Cincinnati-Dayton Road and scattered single-family residences.

The entire site, including the presently used landfill area, is scattered with debris such as tires, wood, aerosol cans, numerous large tanks, engines, washers, and dryers.

Access to the site is obtained from the Cincinnati-Dayton Road. There is a complex pattern of trailways leading into and through the landfill. One residence is located in the landfill area itself. Refer to the site map (Figure 2-3) for a general layout of the area, and to the Site Visit Memorandum (Appendix A) for a summary of observations made during the RAMP site visit.

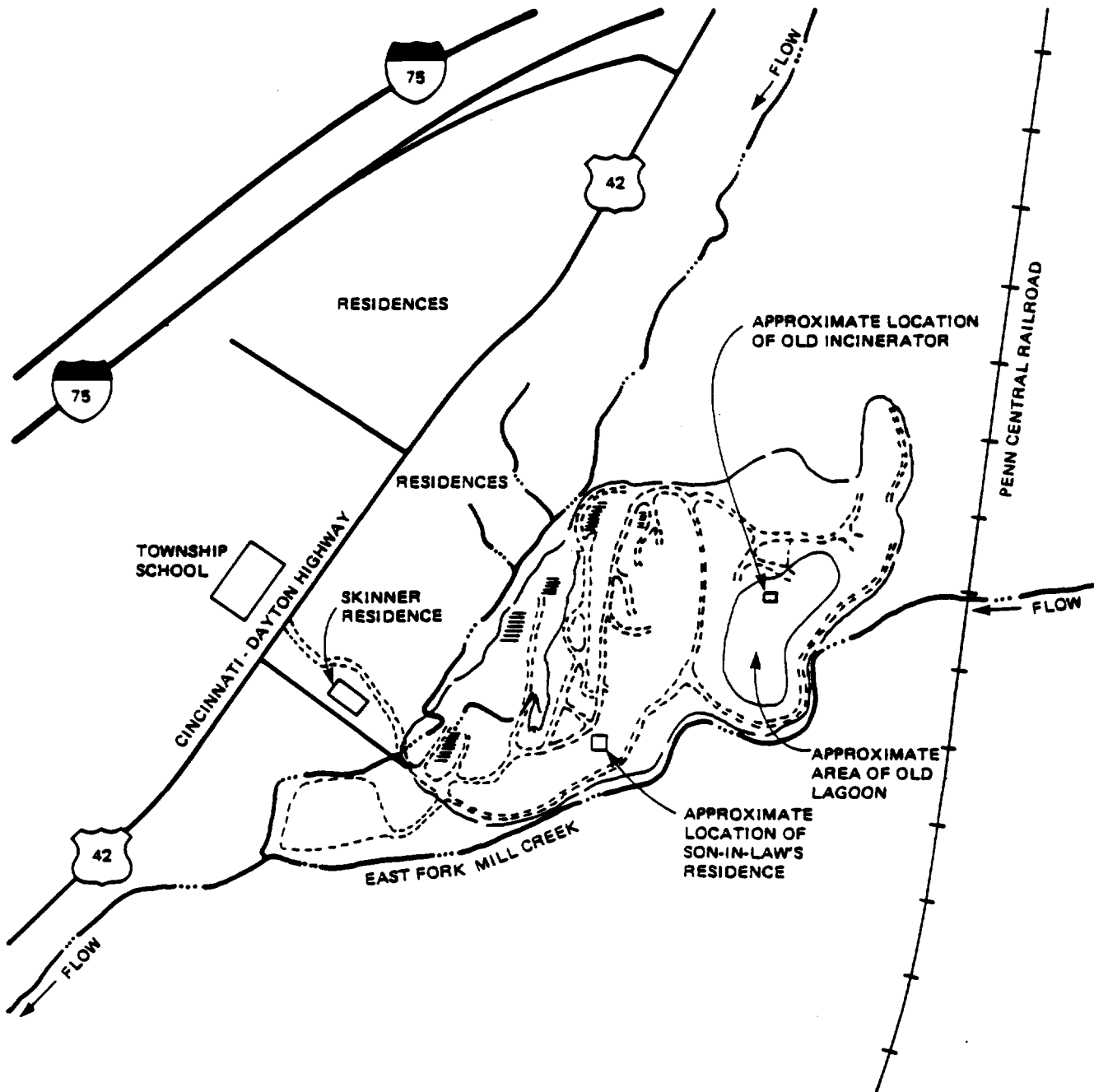
The site is hidden from the public community by the surrounding trees and other vegetation which appears to be normal and healthy. Trails leading to the six water ponds suggest possible dumping activities or usage of the water. Two intermittent drainages traverse the base of the landfill flowing southwest through the Town of West Chester where they meet to form the East Fork of Mill Creek.

#### 2.2.2 Site History

From photo analysis, it appears that the land was originally used in the 1930's for the extraction of sand and gravel.

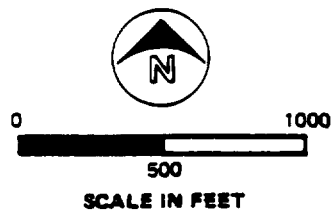


**FIGURE 2-2  
LOCATION MAP  
SKINNER LANDFILL**



**LEGEND**

- LANDFILL BOUNDARY
- ▨ STANDING WATER PONDS



**FIGURE 2-3**  
**SITE MAP**  
 SKINNER LANDFILL SITE



During the next several decades the Skinners accepted general municipal refuse. As early as 1964 hazardous waste was reportedly accepted at the landfill and cyanide was confirmed to have been disposed of at the site. In 1976, toxic chemicals from the Chem-Dyne Corp. were reportedly placed in the landfill.

The site was never permitted as a municipal landfill and is presently unpermitted. Application for a permit was made but never approved because the area had previously been zoned as a rural residential area. Because the landfill was not permitted, regular inspections were not conducted. Therefore, records concerning the landfill operation are scarce.

In 1977, the landfill operators were charged by Ohio EPA with improperly disposing of hazardous waste material at the site. Approximately 100 drums, allegedly containing industrial and chemical wastes, were photographed onsite. In a subsequent court case in which the Ohio EPA attempted to force the land owners to remove the drums, the presiding judge ruled that the Ohio EPA failed to present sufficient evidence that the drums posed a danger. The same judge did prohibit the landowners from using the facility for future disposal or storage of industrial wastes of any nature except under legal permit.

Another business activity was conducted onsite by John Skinner, son of the landfill owners. Beginning in the early 1960's, John Skinner worked for the Chem-Dyne Corporation (now in receivership), cleaning, washing and repairing Chem-Dyne equipment used to haul chemical wastes. This activity apparently began under the auspices of William Kovacs, a vice president of Chem-Dyne Corp. It is unknown when this business began or ended; however, in the court case referred to above, which was tried in October 1978, the presiding judge allowed this activity to continue.

#### 2.2.3 Remedial Actions to Date

To date there have been no remedial actions taken to rectify the problems at the Skinner Landfill site.

#### 2.2.4 Chronology

A chronology of the Skinner Landfill site is presented in Appendix B.

### 2.3 HAZARDOUS MATERIALS CHARACTERIZATION

#### 2.3.1 Generators and Transporters

The possible generators and possible transporters of hazardous material to the Skinner Landfill and identified in

a report entitled "Skinner Landfill - Responsible Party Search" written in April 1983 under EPA Contract No. 68-01-6543.

### 2.3.2 Materials - Quantitative

Miscellaneous sampling of the materials at the Skinner Landfill has taken place to identify and quantify possible hazardous wastes present (Table 2-1).

The results from the analyses of many of these samples were nonexistent in the reference materials available for the preparation of this RAMP.

During a heated confrontation with authorities in May 1976, the Skinners reported the following materials to be buried in the landfill:

- Nerve gas
- Mustard gas
- Incendiary bombs
- Phosphorus
- Flame throwers
- Cyanide ash
- Other explosive devices

A military unit was brought to the landfill under a search warrant and found no explosive devices. Cyanide ash, phosphorus, and several flame throwers with canisters were the only items from this list that were found onsite.

During the excavation of the lagoon area in 1976, seven samples were taken from 55-gallon drums and liquid ooze in the pit. Table 2-2 summarizes the results of the laboratory analysis of these samples.

### 2.3.3 Materials - Qualitative

From the ooze samples taken on May 11, 1976, the chemicals identified by the Gas Chromatograph - Mass Spectrophotometer process were:

- o Trichloropropane
- o Dichlorobenzene
- o 1, 3 Hexachlorobutadiene (Aldrin Component)
- o Naphthalene
- o Hexachlorocyclopentadiene (C-56)
- o Methyl Napthalene (Two Isomers)
- o Iso-Butyl Benzolate
- o HexachloroNor-Bornadine (Endrin Intermediate)
- o Octachloro-cyclo-pentene
- o Heptachlor-nor-borene
- o Hexachlorbenzene

Table 2-1  
SUMMARY OF SAMPLING EVENTS AT SKINNER LANDFILL  
01-5V73.0

<u>Sampling Date</u>	<u>Description of Materials Sampled</u>	<u>Sampling Agency</u>
April 26, 1976	Surface puddles in lagoon area	Ohio EPA
May 3, 1976	Groundwater - private wells in the vicinity of the landfill	Ohio Department of Health
May 11, 1976	7 samples - pit ooze and barrel liquid in lagoon area	Ohio EPA
July 29, 1976	5 borings	H.C. Nutting for Albert Skinner
July 25, 1977	Leachate puddle and stream samples in lagoon area	Ohio EPA
July 27, 1982	4 monitoring wells installed for Mitre Program on 7/19/82	FIT/E&E

GLT420/6

Table 2-2  
 QUANTITATIVE RESULTS OF LABORATORY ANALYSIS  
 PIT OOZE AND BARREL LIQUID  
 SKINNER LANDFILL

Collection Date: May 11, 1976

<u>Constituent</u> (All results in mg/l)	<u>SAMPLE NUMBER</u>				
	<u>#13750</u>	<u>#13751</u>	<u>#13752</u>	<u>#13753</u>	<u>#13754</u>
Cyanide	6.76	7.5	0.36	5.4	761
Cadmium	755	180	2.0	5.6	50
Chromium (total)	160	65	4.0	350	126
Lead (total)	1,050	285	--	1,370	554
Mercury (total)	0.047	0.0135	0.006	0.01	0.075
Zinc	480	165	20.0	420	325
Copper	185	129	2.1	269	1,840
Phenol	27.3	24	12.8	8.8	11.2

The above samples were tested at the U.S. EPA Cincinnati Lab.

	<u>#13750</u>	<u>#13751</u>
Cyanide	9.1	7.7

The sample above was tested at the ODH Lab.

Identification of samples

- #13750 - Liquid in pit (black color)
- #13751 - Liquid in pit (orange color)
- #13752 - Barrel recovered from pit
- #13753 - Barrel recovered from pit
- #13754 - Barrel recovered from pit

GLT420/7

- o Chlordene
- o Methyl Benzyl Phenone
- o Octachlor penta fulvalene

The contents of the barrels sampled were found to include the following in varying amounts:

- o Cyanide
- o Cadmium
- o Chromium
- o Lead
- o Mercury
- o Zinc
- o Copper
- o Phenol

## 2.4 ENVIRONMENTAL SETTING

### 2.4.1 Physiography and Topography

Butler County is in the Central Till Plains section of the Central Lowland physiographic province. The topography of the county has been greatly influenced by Wisconsin glacial erosion modified the bedrock, and the present surface relief generally conforms to this modified bedrock topography. The resulting physiographic features include gently rolling glacial uplands, glacial terraces and outwash plains.

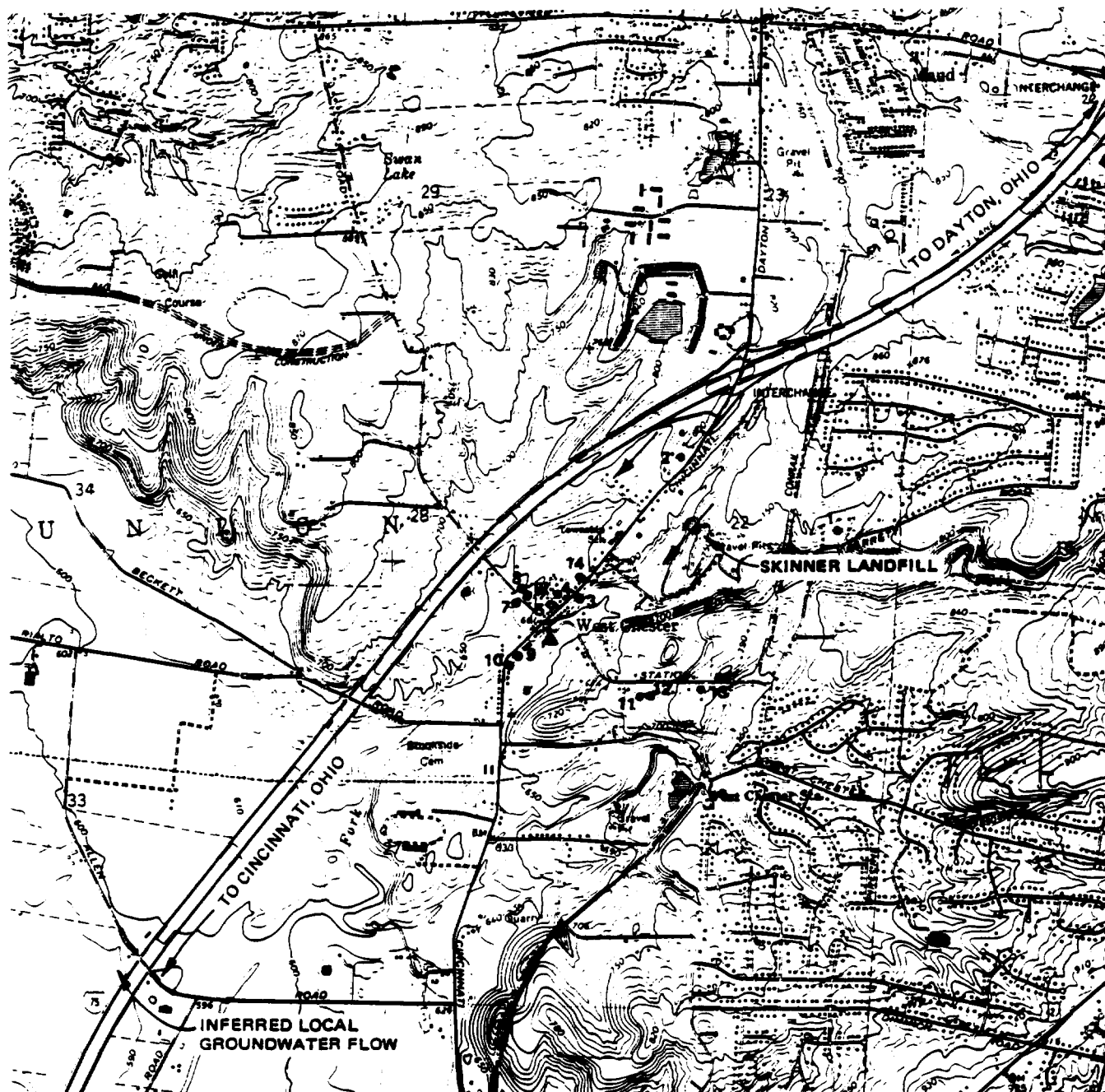
The Skinner property is presently characterized by hummocky terrain resulting from sand and gravel mining. The site is situated on an elongated hill about 50 feet above the surrounding terrain (Figure 2-2).

### 2.4.2 Geology

Butler County lies over a gentle dome known as the Cincinnati arch. Bedrock under the county is primarily shale and limestone of Ordovician age. The bedrock structure has been eroded and buried under deposits from Wisconsin glacial erosion.

The Town of West Chester appears to be situated over a narrow, preglacial bedrock valley (St. John, 1981). This valley, which trends northeast-southwest, is filled with clay, sand and gravel. The Skinner property appears to be located on areas covered by several feet of sand and gravel and other areas where glacial till is thin over shale and limestone.

Topographic and Soil Conservation Services maps indicate that sand and gravel have been mined on the Skinner property. Wells near the site (wells 11, 12, 13 in Figure 2-4 and Table 2-3) encountered shale bedrock at depths of 6, 8 and 20 feet.



#### LEGEND

- RESIDENTIAL WELL LOCATION
- ▲ STREAM SAMPLING POINT

SOURCE: U.S.G.S. 7.5' GLENDALE, OHIO QUADRANGLE.



**FIGURE 2-4**  
**LOCATION OF KNOWN**  
**RESIDENTIAL WELLS**  
**SKINNER LANDFILL**

Table 2-3  
RESIDENTIAL WELL LOGS

- |   |  |
|---|--|
| 1. Tom Hancock - sampled 5/3/76<br>0-5' topsoil<br>5-17' sand and clay<br>17-60' rock<br>Static level - 15 feet<br>Water at 15 feet<br>3 gpm                    | 7. James Riesenberg<br>0-46' sandy clay<br>46-50' sand and gravel<br>10 gpm  |
| 2. Russell Klein<br>0-35.5' clay<br>35.5-104' limestone<br>Static level - 38 feet   | 8. Cecil Faber<br>0-7' topsoil<br>7-75' sand and gravel<br>water at 55'  |
| 3. Ronald Harper<br>0-40' clay<br>40-75' gravel<br>75-90' gray shale  | 9. Presbyterian Church<br>0-18 clay<br>18-22 sand<br>22-59 clay<br>Static level - 10 feet                          |
| 4. Lee Ball<br>0-42' clay<br>42-80' gravel<br>80-96' clay<br>96-130' gray shale<br>130-150' gray limestone<br>Static level - 110 feet<br>Casting set into shale | 10. Kenneth Joseph<br>0-5' clay<br>5-20' creek gravel<br>20-45' clay<br>45-52' creek gravel<br>52-54 sandstone (?) |
| 5. Joseph<br>0-10' clay<br>10-30' gravel<br>42-50' gravel<br>Static level - 26 feet   | 11. West<br>0-6' clay<br>6-58' shale   |
| 6. Williams<br>0-3' topsoil<br>3-16' yellow clay<br>16-20' sand and clay<br>20-31' gravel and clay<br>31-34' sandstone (?)<br>Static level - 17 feet            | 12. Sears<br>0-6' clay<br>8-100' shale   |
|   | 13. Needham<br>0-20' clay<br>20-75' rock<br>Static level - 30 feet   |
|   | 14. Douglas<br>8819 Cin-Day Road<br>Sampled 5/3/76<br>Source: Hosler/1982  |

Two borings near the lagoon (B-5 and B-8 in Figure 2-5 and Appendix C) encountered shale at depths of 14.5 and 15 feet. Elevations of several borings drilled near the lagoon were not available for constructing profiles; however, it appears that a continuous clay layer under the lagoon does not exist. These borings encountered layers of silt, clay, and sand and gravel, typically found in glaciated areas.

#### 2.4.3 Hydrology

Surface drainage from Butler County reaches the Ohio River via the Great Miami River, Mill Creek, and Muddy and Little Muddy Creeks. Runoff from the Skinner site drains to the southwest into the East Fork of Mill Creek. Mill Creek flows south-southwest through Cincinnati before reaching the Ohio River.

Because of excavations for sand and gravel and regrading for landfill operations, the surface drainage patterns are greatly changed from their natural patterns. There are bodies of ponded water along the western side of the site. Two intermittent streams flow southwest along the base of the landfill through the Town of West Chester where they meet to form the East Fork of Mill Creek.

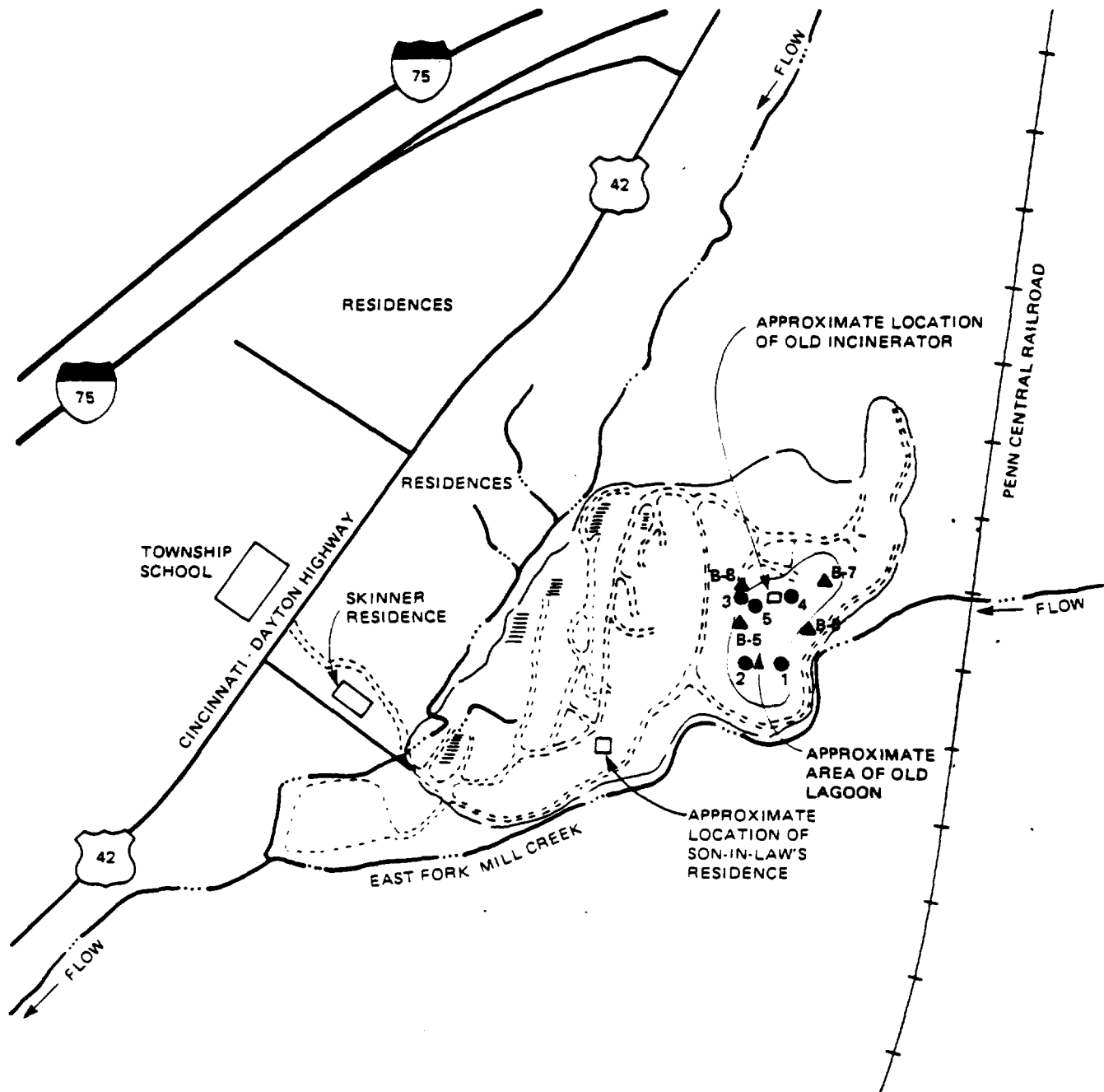
During a site visit inspection by Joe Moore, Ken Harsh and Jim Pennino of the Ohio EPA on July 25, 1977, leachate was observed seeping from the vicinity of the buried lagoon. The inspectors also observed drums filled with a white, semisolid material stacked near the creek. Some of the drums were leaking and draining into a nearby creek. Water samples were taken of the stream and leachate seep and a sample of the white solid material was also collected. Published results from the laboratory analysis of the leachate puddle were available (Table 2-4); however, no other data were available regarding the other samples taken.

#### 2.4.4 Geohydrology

Groundwater supplies in Butler County are primarily obtained from wells established in glacial drift. The underlying shale and limestone have low yields of brackish and highly mineralized water (Klair and Thompson, 1948). Wells in West Chester appear to be exceptions to this norm. Nine of thirteen well logs from the town indicate that the wells are completed in rock. Static water levels in these wells are generally above the top of rock.

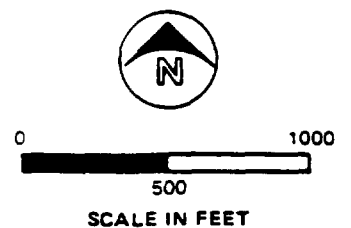
Unconsolidated fill in the buried valley under West Chester constitutes a high yielding aquifer that is used by many local residents. Groundwater movement is probably to the southwest, along the strike of the buried valley discussed in Section 2.4.2 (St. John, 1981).





# **LEGEND**

- — LANDFILL BOUNDARY
- ▤ STANDING WATER PONDS
- ▲ BORINGS DRILLED BY ATEC FOR E&E
- BORINGS DRILLED BY H. C. NUTTING FOR ALBERT SKINNER



**FIGURE 2-5**  
**APPROXIMATE LOCATION OF BORINGS**  
**DRILLED IN LAGOON AREA**  
**SKINNER LANDFILL**

Table 2-4  
LEACHATE PUDDLE

Sample Date: July 25, 1977

<u>Compound</u>	<u>Concentration (mg/l)</u>
Chloride	9,600
Cadmium	598
Chromium	120
Copper	260
Lead	55
Mercury	\$ 1
Zinc	240
Phenols	\$ 2

Arsenic levels could not be verified because of interference by dilution.

GLT420/8

On May 3, 1976, private wells were sampled in the vicinity of the Skinner Landfill by the Ohio Department of Health (ODH). The results from two of these wells are presented in Table 2-5. Also included in the table are results of testing for two borings drilled in 1982 by E&E.

#### 2.4.5 Air Quality

In 1981 Butler County was classified as attaining the primary National Ambient Air Quality Standard (NAAQS) for criteria pollutants of total suspended particulates (TSP) and sulfur dioxide ( $\text{SO}_2$ ), but not for ozone ( $\text{O}_3$ ) (Office of Federal Register, 1982). Levels of carbon monoxide (CO) and nitrogen dioxide ( $\text{NO}_2$ ) could not be classified or were within allowable standards.

Between April 21, 1976 and April 26, 1976, the Southwestern Area Air Pollution Control Agency received numerous complaints of chemical odors originating on the Skinner property. One person living about 2,000 feet from the landfill indicated that a chemical odor was very heavy and "affected your eyes and makes you cough and catch your breath." Faculty at a school located near the entrance to the landfill have indicated that there were odors coming from the landfill for some time, particularly when the air was humid. Over the years, numerous fires at the landfill triggered increased complaints about odors, especially from residents of a subdivision located near the landfill.

The only readily available air quality measurements at the Skinner site were recorded during the May 24, 1983 site visit. The monitoring equipment (HNU, HCN and explosimeter) used during the site visit did not detect any contaminants in the air. High HNU readings (150 ppm and 400 ppm) were detected in two bulk tanks located in the southwest part of the site (Figure 2-6).

#### 2.4.6 Ecology

Before settlement occurred in Butler County, the area was almost entirely covered by a forest of mixed hardwoods. Scattered woodlots averaging 20 acres in size now cover about 10 percent of the county, mostly in areas unsuitable for other land uses. These woodlots provide habitat for animals such as white-tailed deer, squirrels, raccoons, and thrushes.

The area in the vicinity of the Skinner site is suitable for woodland and openland wildlife, but not for wetland wildlife. Openland wildlife would include cottontails, quail and meadowlark.

During the site visit on June 3, 1983, several bluegill were observed on a board beside a pond on the west side of the Skinner property. It appeared that the fish had just been

Table 2-5  
GROUNDWATER ANALYSES (mg/l)  
SKINNER LANDFILL

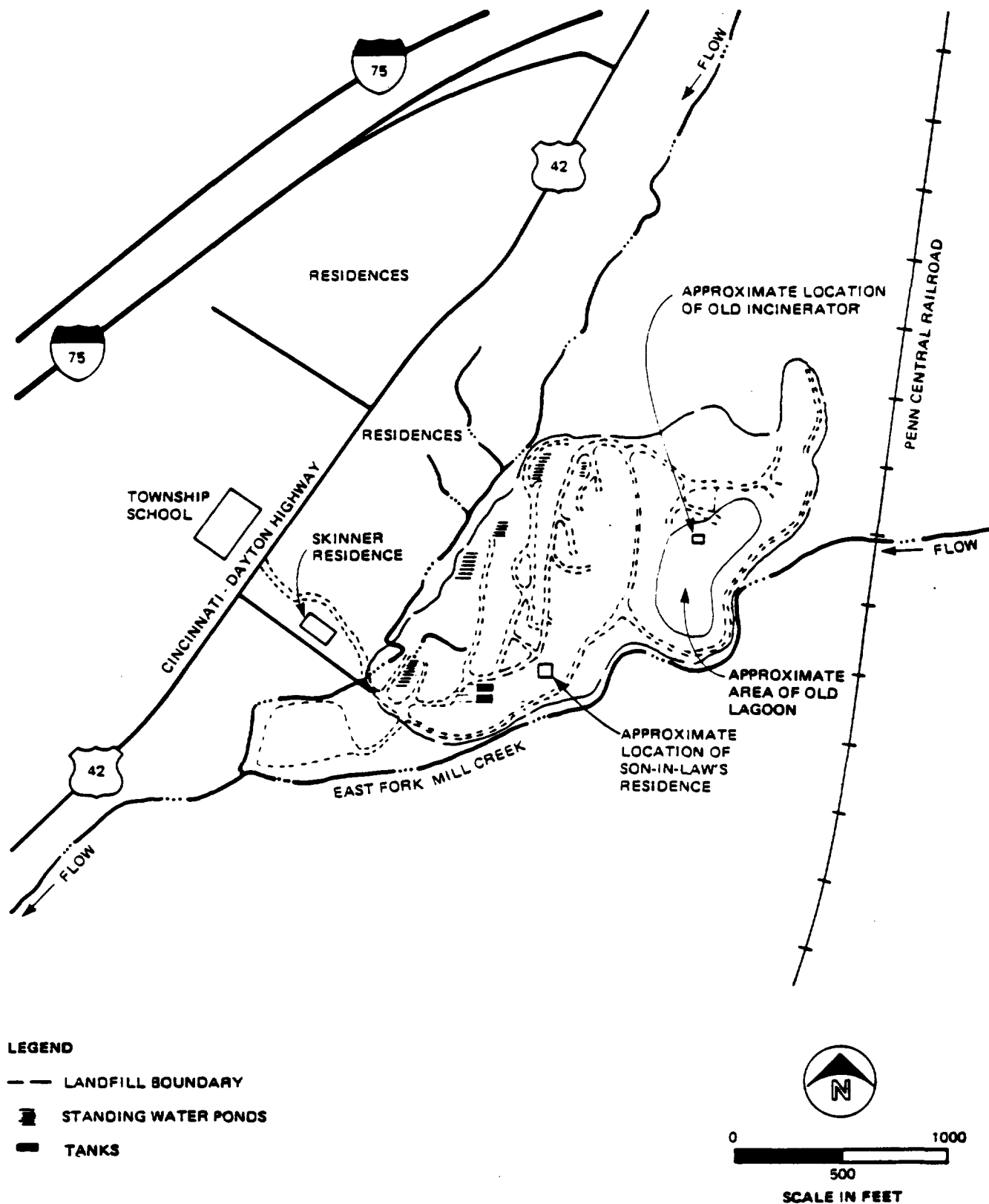
LOCATION:	Well B-5	Well B-6	Blank	Douglas Residence	Hancock Residence	EPA Water Quality Criteria
DATE:	<u>07/27/82</u>	<u>07/27/82</u>	<u>07/27/82</u>	<u>05/03/76</u>	<u>05/03/76</u>	
Silver (Ag)	0.030	0.012	ND			0.05
Aluminum (Al)	0.53	16	ND			--
Barium (Ba)	0.35	0.48	ND	< 0.20	.020	1
Beryllium (Be)	ND	ND	ND			--
*Chromium (Cr)	0.055	0.045	ND	< 0.03	< 0.03	0.50
Cobalt (Co)	0.31	0.19	ND			--
*Copper (Cu)	ND	0.065	ND	< 0.03	< 0.03	--
Iron (Fe)	8.7	55	0.22	< 0.03	0.14	--
Manganese (Mn)	18	7.6	0.035			--
*Nickel (Ni)	0.41	0.30	ND	< 0.1	< 0.1	13.4
Vanadium (V)	ND	ND	ND			--
*Zinc (Zn)	0.41	0.39	0.040	0.27	0.70	--
*Arsenic (As)	ND	0.018	ND	< 0.01	< 0.01	0.05
*Cadmium (Cd)	0.064	0.032	0.001	< 0.01	< 0.01	0.010
*Mercury (Hg)	ND	0.00033	ND	< 0.005	< 0.005	0.002
*Lead (Pb)	0.54	0.023	ND	< 0.01	< 0.01	0.050
Selenium (Se)	0.011	ND	ND			0.01
Antimony (Sb)	ND	ND	ND			--
Tin (Sn)	ND	ND	ND			--
Thallium (Te)	ND	ND	ND			--
Cyanide	ND	ND	ND	< .01	< .01	--
Calcium Carbonate				374	366	--
Sulfate				81	52	--
Chloride				42	10	--
Phenols				< 2	< 2	--

ND = Not detected.

\* = Priority pollutant.

-- = No criteria set.

GLT420/10



**FIGURE 2-6**  
**APPROXIMATE LOCATION OF BULK**  
**TANKS CONTAINING DETECTED ORGANICS**  
**SKINNER LANDFILL**

caught and someone was preparing to clean them. There were no signs of stressed vegetation observed during the site visit.

#### 2.4.7 Socioeconomics

In 1970 Butler County had a population of 226,207 persons with Hamilton, the county seat, accounting for 67,865 persons. According to the Soil Conservation Service (SCS, 1980), about two-thirds of the 301,184 acres in Butler County is farmland. Industrial growth has been diverting land use to nonfarm uses at an increasing rate since about 1958. The dominant industries are related to steel and iron, paper, safes and bank vaults, machine tools, and auto body parts.

The sale of livestock and livestock products accounts for about half of the farm income in the county. Corn accounts for 23 percent of the total farm income with soybeans, wheat, oats and hay providing a significant amount of income on some farms.

SCS maps (1980) indicate that most of the Skinner property has been mined for sand and gravel. This material would have been used in construction and road building. Land use surrounding the site includes single-family residences to the west, wooded land to the north and east, and wooded and agricultural land to the south. This area appears to be developing as a bedroom community for Cincinnati, Dayton, and Hamilton.

### 2.5 ASSESSMENT OF POTENTIAL IMPACTS

#### 2.5.1 Public Health and Safety

Although the Skinner Landfill is in a rural area and is not visible to the general public, there is potential for direct and indirect contact with contaminants from the site. It appears that individuals regularly come on the site to dispose of household and possibly construction rubbish. The general public is apparently not aware of the hazardous materials on the site. Since the site is not fenced and there are no signs warning of potential danger, there is nothing to limit access of people or animals to the site.

People may be coming to the site to fish or hunt. Children from the nearby school or subdivision may be crossing or even exploring the site. While on the site, there is potential for direct contact with hazardous materials. Organisms taken from the site, if consumed, may indirectly contaminate humans.

There is potential for contamination of the streams around the site if water in the ponds or onsite soils are contam-

inated. Leachate from the landfill may also be reaching the streams. These streams feed Mill Creek, which flows to the Ohio River through Cincinnati, and provide recharge to the shallow, unconsolidated aquifer used by some residents of West Chester.

Incomplete combustion of some of the materials on the site could cause a public health hazard in the event of a fire. It appears that the Skinners are no longer burning material on their property, but the possibility of accidental fires should be considered.

#### 2.5.2 Environment

Pollutants from the Skinner Landfill could affect terrestrial and aquatic life on and off the site. Runoff from rainfall or snowmelt could transport contaminants to the ponds onsite and to the streams surrounding the site. Many of the hazardous materials that may be on the site can bioaccumulate in the food chain. They may not be at toxic concentrations in the water, but could be found in the tissues of receptor organisms in concentrations high enough to cause toxicity. This could lead to human health concerns if the organisms, such as fish, are eaten.

Other wildlife of concern could include resident and migrating birds, as well as larger animals, such as deer. Bioaccumulation of hazardous materials can lead to reproductive failure or acute or chronic toxicity.

#### 2.5.3 Socioeconomics

The presence of hazardous wastes near homes that depend on a potable aquifer and in a growing residential area may affect the socioeconomic balance of the area. The newer subdivisions in the area are home to a transient community dependent upon selling their homes when their companies transfer them. The knowledge that a hazardous waste site is in the area may cause a decline in area growth and reduced property values.

#### 2.6 DATA LIMITATIONS

Data used in the preparation of this RAMP were taken from available known sources, including, but not limited to, the following:

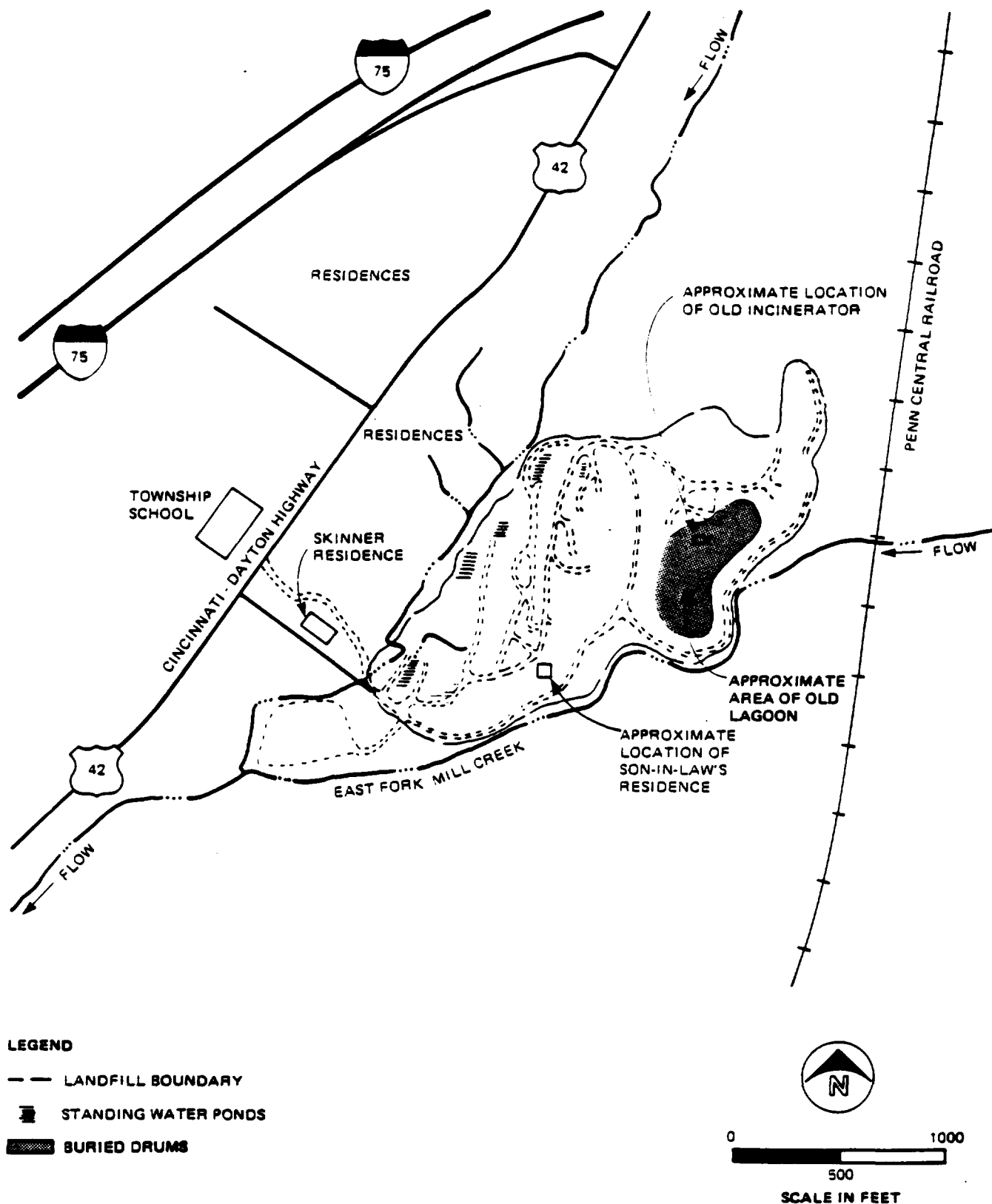
- o EPA files
- o Other state and local files
- o Site visit inspection
- o General conversations with persons at the site and/or conversations with personnel having knowledge of the site.

The data compiled from the above are limited in the following regard:

- o The lagoon area containing known toxic wastes is not clearly identifiable in the existing documents. Therefore, the area of buried drums where samples were taken in 1976 is only approximate (Figure 2-7).
- o There were 55-gallon drums (estimate 250) and storage tanks (estimate 60) visible throughout the entire site. There is no information as to the materials (if any) stored in these drums. During the initial RAMP site visit, two of the tanks tested showed high levels of organics. There is no information as to what is buried (drums, split drums, tanks) in the landfill.
- o The extent of seepage from these drums and tanks onto the surface soils is unknown.
- o There are two intermittent streams traversing the base of the landfill area. Results were not available for water chemistry or organic analysis of any samples taken. Possible groundwater contamination is the major concern regarding the Skinner Landfill site.
- o Nine borings have been drilled near the old lagoon area. These were relatively shallow borings and more information is needed for geologic analysis. The exact locations and elevations of these nine borings cannot be determined from the existing information.
- o There is no record of any soil samples taken in the area of the chemical dump or any other portion of the landfill area.
- o Only limited sample data were readily available for private wells in the area.
- o Current aerial photography is needed for analysis of materials and possible problem areas at the site.
- o Topographic data are limited to USGS quadrangle maps of the area. These maps have a 10-foot contour interval while a smaller contour interval is needed for analysis of surface drainage and runoff.
- o No water quality or sediment data were readily available for the six ponds.

GLT420/5





## REFERENCES

Office of Federal Register. Code of Federal Register 40, Part 81, 1982

Klair, F.H., Jr. and D.G. Thompson. "Groundwater Resources of the Cincinnati Area, Butler and Hamilton Counties, Ohio," U.S. Geological Survey Water Supply Paper 999.

St. John, Ron. Ohio/TDD#F5-8110-4 - West Chester/Butler County Skinner Landfill - A Preliminary Hydrogeologic Report. Ecology and Environment, Inc., 1981.

Soil Conservation Service. Soil Survey of Butler County, Ohio. January 1980.

GLT420/5

### 3.0 REMEDIAL ACTION PLANNING

#### 3.1 REMEDIAL ACTION PLAN

##### 3.1.1 Overall Approach to Site

Remedial actions are developed for the site in accordance with the NCP and include:

- o Initial remedial measures
- o Source control remedial actions
- o Offsite remedial actions

Existing data are inadequate to characterize the site and to develop and evaluate solutions for source control or offsite remedial actions. A remedial investigation/feasibility study (RI/FS) is necessary to fill gaps in the existing data and to evaluate alternative remedial actions.

##### 3.1.2 Master Site Schedule

The master site schedule for the Skinner Landfill site is shown in Figure 3-1. The project is assumed to begin upon receipt of the work assignment.

#### 3.2 INITIAL REMEDIAL MEASURES

##### 3.2.1 Objective

The baseline initial remedial measures (IRM's) recommended below are considered feasible and necessary to limit exposure or threat of exposure to a significant health hazard from the Skinner Landfill site. They are consistent with the following requirements of Section 300.68(e)(1)(i) of the National Contingency Plan for the determination of whether IRM's are appropriate:

- o "Actual or potential direct contact with hazardous substance by nearby population."
- o "Highly contaminated soils largely at or near surface, posing a serious threat to public health or the environment."

As previously discussed, hazardous substances from the Chem-Dyne facility have reportedly been dumped on the Skinner property. These materials include pesticides, solvents, heavy metals and cyanide (refer to Section 2.3 of this RAMP for more detailed information on the hazardous materials present in the landfill area). Also present in the landfill are numerous 55-gallon drums, the contents of which are unknown. Another area of concern are the six standing water ponds on the west side of the landfill site. These ponds

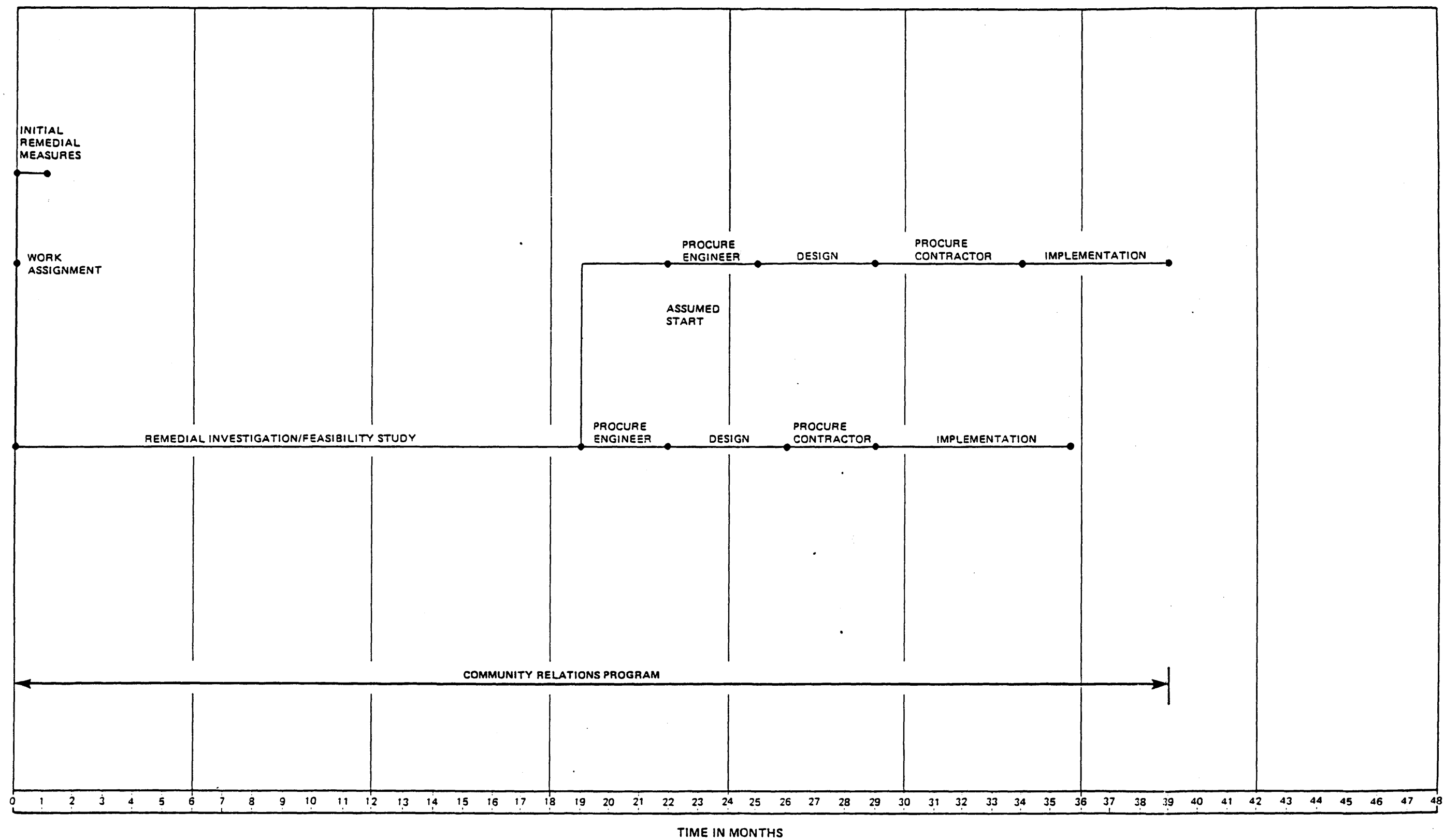


FIGURE 3-1  
MASTER SITE SCHEDULE  
SKINNER LANDFILL

all have trails leading to them and trucks have reportedly been seen backing up to the ponds.

The major areas of concern at the Skinner Landfill site are:

- o The possible migration of hazardous materials into the groundwater supply
- o The possible migration of hazardous materials into the surface water streams traversing the base of the site
- o Soil contamination in the areas of hazardous materials dumping

The groundwater and surface water in the local vicinity are utilized by numerous families in the area.

### 3.2.2 Recommended Actions

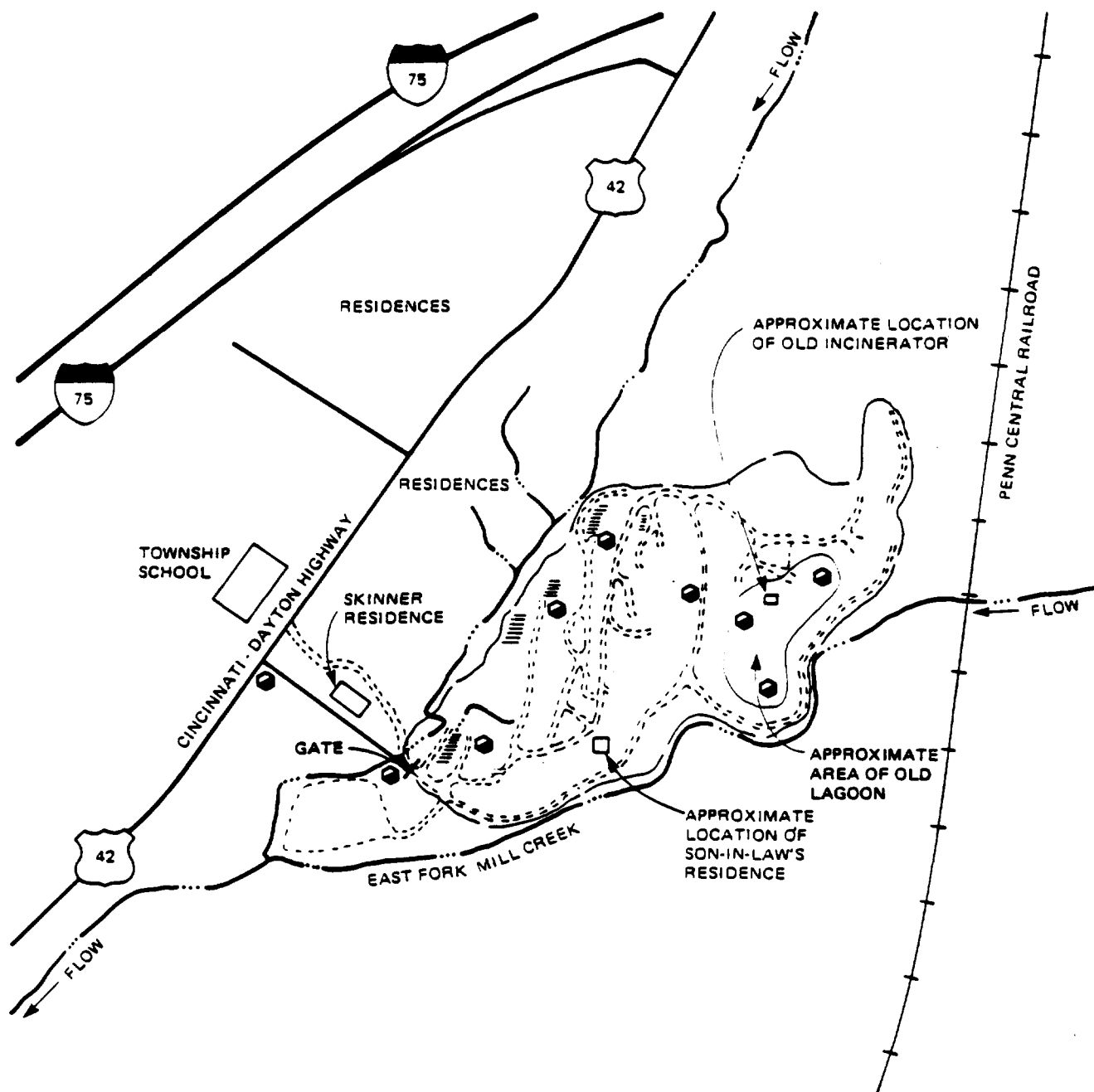
#### Installing a Gate and Placement of Warning Signs

The Skinner property comprises 50 to 70 acres of land with a great quantity of miscellaneous material scattered throughout. A maze of trails winds amongst the drums, storage tanks and debris. The quantity and quality of material present in these scattered drums and tanks is unknown. The site is relatively remote; however, during the RAMP visit at least 10 different trucks and cars were seen on the site at various locations.

Since the landfill site has never been closed to public access, it may be difficult to support the placement of any barrier barring public entrance. Should this step be taken, a single gate at the entrance to the actual landfill would discourage traffic from using the site (Figure 3-2).

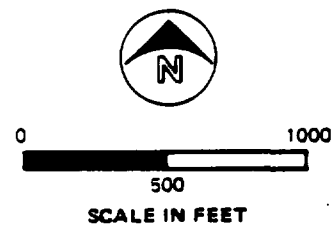
Warning signs should be placed in areas clearly visible to personnel entering the site, beginning at the point of ingress from Cincinnati-Dayton Road. These should be placed at points immediately after turning off of the roadway onto the trail leading into the landfill and at the entrance to the actual landfill. Signs will state: "DANGER--HAZARDOUS MATERIALS PRESENT" in 3-inch-high letters and will be constructed of galvanized steel with luminescent paint, visible from a distance of 25 feet. The signs will be positioned on a galvanized steel post 2 inches in diameter and 4 feet above the ground surface.

In addition, these signs should be posted in areas of high concentrations of drums or storage tanks and areas containing known contaminants (see Figure 3-2).



**LEGEND**

- LANDFILL BOUNDARY
- ▨ STANDING WATER PONDS
- WARNING SIGN



**FIGURE 3-2  
LOCATION OF GATE AND  
WARNING SIGNS  
SKINNER LANDFILL**

### Warning to People Living in Site Area

It is recommended that the ODH meet with the inhabitants onsite (the Skinner's son-in-law and family) to make them aware of the potential health implications of living in the landfill area (Figure 3-3).

### Advisory Notice

It is recommended that an advisory notice be issued by the ODH and be delivered door-to-door to residents living within the general area (approximately 0.5 mile) of the landfill.

The notice should advise the residents as follows:

- o Contaminated soil and unknown hazardous materials are present onsite.
- o Studies will be undertaken to identify measures to cost-effectively reduce the level of contamination.

Immediately following delivery and mailing of the advisory notice, a press release should be issued to announce and explain the intent of the notice. The notice and press release should also announce a public meeting in which the EPA will explain the present status of the site and answer citizen questions.

The Order-of-Magnitude cost estimate assumes that the advisory notice and press release will be issued by the ODH with the contractor assisting in its preparation. No costs are included in the cost estimate for the public meeting.

### 3.2.3 Cost Estimates and Schedule

The Order-of-Magnitude cost estimates and time schedule for each of the IRM's are shown in Figure 3-4.

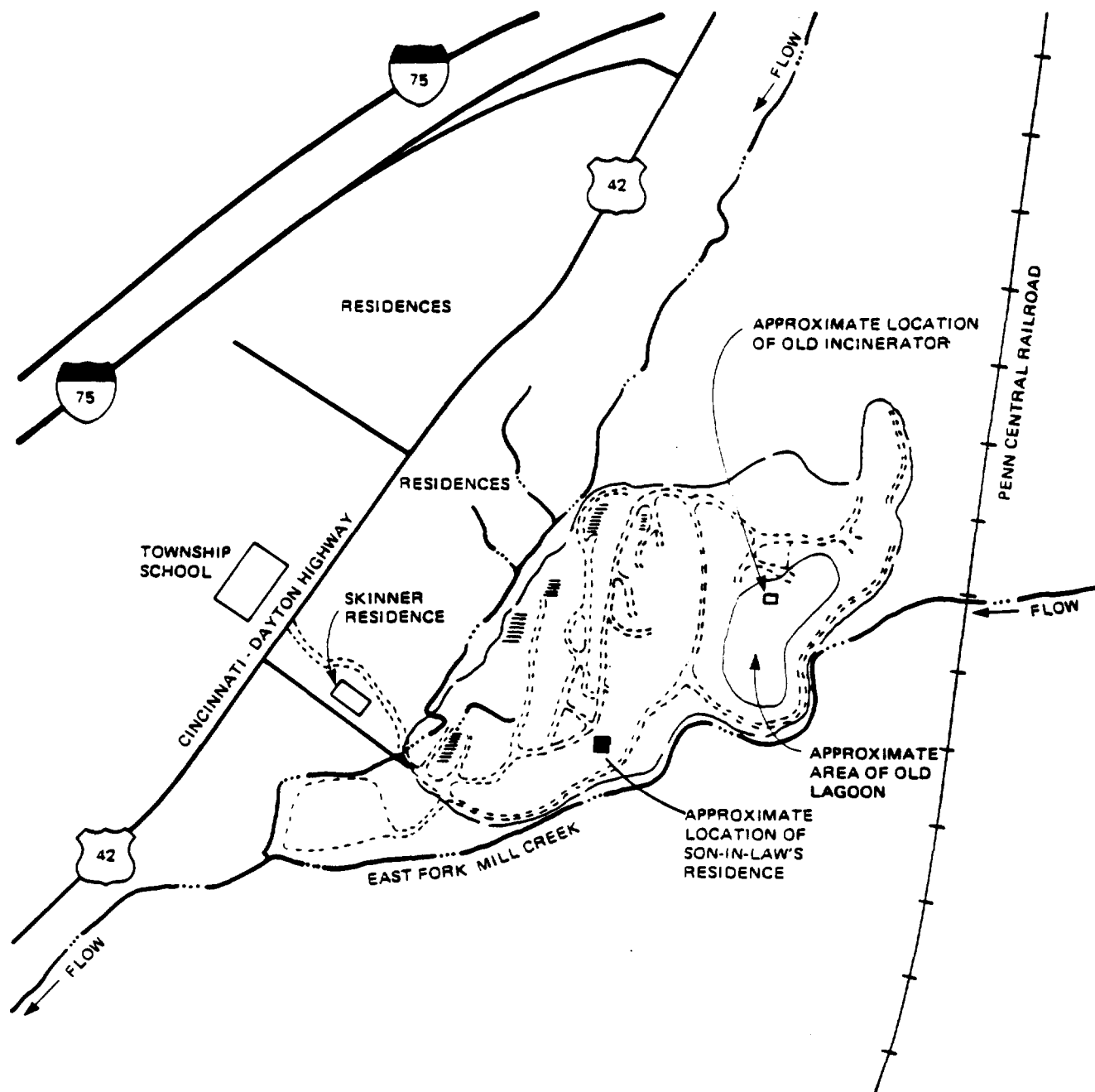
## 3.3 REMEDIAL INVESTIGATION/FEASIBILITY STUDY

### 3.3.1 Scope of Work

The scope of work proposed for the RI/FS follows. It includes nine activities.

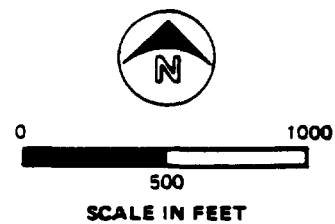
#### Remedial Investigation Activities

- o Preparation of work plan
- o Site definition activities
- o Detailed site characterization studies
- o Remedial investigation report
- o Project management activities



#### LEGEND

- LANDFILL BOUNDARY
- ▨ STANDING WATER PONDS
- RESIDENCE



**FIGURE 3-3**  
**APPROXIMATE LOCATION OF**  
**INHABITANT'S RESIDENCE**  
**SKINNER LANDFILL**



Figure 3-4  
IRM COST ESTIMATE AND SCHEDULE  
SKINNER LANDFILL  
W65173.00

IRM's	ESTIMATED COST		SCHEDULE OF WEEKS										
	Low(\$)	High(\$)	1	2	3	4	5	6	7	8	9	10	
Gate and Warning Signs	\$1,800	\$2,500	----										
Warning to Inhabitants	200	300											
Press Release	<u>1,300</u>	<u>2,000</u>											
TOTAL	\$3,300	\$4,800											

---- Contract preparation

GLT420/13-2

## Feasibility Study Activities

- o Evaluation of remedial action alternatives
- o Alternative remedial action feasibility report
- o Conceptual design
- o Project management activities

The four remedial investigation activities are discussed below. Sufficient data are not available to specifically define feasibility study activities relative to the site. A generic discussion of the project management and feasibility study activities is included in Appendix D.

### Activity 1 - Preparation of Work Plan

This activity will refine the scope of work for the RI/FS discussed in this RAMP and will develop a schedule and work plan to implement the recommended RI/FS activities.

Task 1-1 - Assemble Project Team. Upon receipt of the work authorization, a project team will be assembled. A kickoff meeting will be held between the U.S. and Ohio EPA and other agency personnel and appropriate members of the project team. The objectives of this meeting are:

- o Introduce respective team members
- o Discuss the overall project objectives and approach
- o Obtain relevant data
- o Discuss sensitive issues
- o Establish channels of communications and reporting
- o Identify preliminary goals and objectives

Task 1-2 - Gather and Review Background Data. During and following the kickoff meeting, available background data not collected during the RAMP will be obtained from the files of the EPA, FIT contractor, state, county, local and regional organizations and other pertinent sources. All new data obtained will be reviewed with special emphasis on the quality control aspects of groundwater, surface water, and soil sampling and analysis. Remedial investigation tasks recommended in this RAMP will be revised as appropriate.

To provide an Order-of-Magnitude cost estimate, it was assumed that one trip to West Chester will be required to gather background data. During this trip, team members who have not yet been to the site will make a site visit. The site can be viewed qualitatively via a windshield survey by participating team members. This will eliminate the need for a site safety plan and safety equipment.

Task 1-3 - Work Plan. Based on the information obtained in Tasks 1-1 and 1-2, a draft work plan will be prepared and submitted for state and EPA review. The final work plan

will be submitted after receipt of written state and EPA comments on the draft plan.

## Activity 2 - Site Definition Activities

This activity will define the physical characteristics of the site and establish onsite health and safety facilities for use by all field personnel.

### Task 2-1 - Prepare Site Health and Safety Assessment

The objective of the health and safety site assessment is to determine if there are portions of the site that present potentially hazardous chemical exposure levels in the air, soil or local water supply. Such information will be useful in selecting and implementing remedial actions that will provide local residents and remedial action investigators/workers with adequate warnings and safeguards. Before conducting the onsite assessment, available information on the site will be examined and reviewed to identify possible sources of hazardous air emissions and potentially hazardous areas.

Trained personnel will conduct a thorough inspection of the entire landfill. They will use the appropriate monitoring equipment such as colorimetric chemical indicator tubes, a combustible gas indicator, an organic vapor analyzer and a photoionization detector. This equipment will be used to obtain sufficient data to render an evaluation of the potential for adverse health effects from chemical exposure levels in the area. A site health and safety plan for future site visits and sampling activities will be prepared from data generated in the assessment.

To provide an Order-of-Magnitude cost estimate, it was assumed that one trip to the site will be necessary for this task.

Task 2-2 - Site Safety Facilities. This task identifies and provides site safety and decontamination facilities for the RI/FS activities.

A combination decontamination and office trailer will be supplied for site use by all field personnel, as required and identified in the health and safety plan. The facility will be supplied by a contractor on a rental basis or purchased, whichever is most cost-effective. Detailed specifications will be developed for space requirements, decontamination equipment, furnishings, and utilities (power, water, waste). The facility will include a secure waste material storage area for temporary storage of wastes generated during onsite work.

The cost estimate assumes that a trailer is needed for the duration of field activities.

Task 2-3 - Site Surveying and Mapping. A topographic survey of the Skinner Landfill site is recommended to create a site plan. This site plan would show pertinent planimetric and topographic features. Special emphasis would be given to showing storage tanks and conglomerate drum locations. Such information is necessary for developing, screening and selecting remedial actions, as well as for the actual design and contracting of the remedial actions. Offsite areas are included in the mapping to allow for evaluation of surface drainage and possible offsite remedial actions.

The control survey will be based upon a local rectangular coordinate system and vertical elevations relative to National Geodetic Vertical Datum of 1929 (NGVD). During the survey effort, existing borings and wells onsite will be located and depths of standing water ponds will be obtained.

Reports and deeds collected in the past have shown that the property in question is owned by the Skinner family. If subsequent remedial investigations and remedial measures carry over into neighboring properties, appropriate permission will be received before commencement of work activities.

To provide an Order-of-Magnitude cost estimate for this task, it was assumed that the site is classified as Level D for health and safety and that aerial photography would be used to develop the topographic map. Efforts will be made by the surveyors to stay clear of the lagoon area. The cost estimate is based on a survey of 70 acres. It is also assumed that one trip would be required to the site for coordination with the subcontractor.

Task 2-4 - Prepare Quality Assurance Plan. A site-specific quality assurance (QA) project plan will be developed. The plan will include a detailed sampling plan and other needs specific to the work assignment or requested by EPA as a result of extraordinary project requirements. A copy of the QA plan will be provided to appropriate EPA and state project personnel.

Task 2-5 - Drum and Storage Tank Sampling and Analysis. The objective of this task is to qualify types of materials present in the landfill and to determine if they are hazardous. An inventory of the drum and tank locations will be made. Selected drums and storage tanks will be numbered and sampled. Information written on the drums will be logged for further use.

The Order-of-Magnitude cost estimate assumes that 50 drums and 20 storage tanks will be sampled. Eight-two samples,

including five blanks and seven duplicates, will be analyzed for the organic and inorganic analysis data package from the U.S. EPA Contract Laboratory Program (CLP). One set of samples is assumed for the cost estimate. Additional sampling may be required after receiving results of this survey. However, no costs are included in the budget for additional sampling.

Task 2-6 - Magnetometer Survey. The amount of wastes reported to have been hauled to the Skinner Landfill since the 1960's appears to be greater than the capacity of the known land-filled area. Some areas of the property have obviously been disturbed. The purpose of the magnetometer survey is to determine if disturbed areas outside of the inactive landfill may have been used to dispose of drums.

Since household waste is present in the landfill, it would be impossible to determine if the magnetometer were only detecting drums. However, the magnetometer survey could help define the extent of the disposal area.

The precise area that should be included in this survey cannot be calculated at this time due to poor site maps and the absence of aerial photography. For cost estimation it is assumed that 20 acres will be surveyed on a 25-foot grid separation.

Task 2-7 - Work Plan Update and Report. Based on the data collected in Tasks 2-1 through 2-6, the work plan prepared in Task 1-3 will be reviewed and revised as needed to update the preliminary scope of work for the following section, Detailed Site Characterization Studies.

A summary report will be prepared at the conclusion of the Site Definition Activities. Included will be the results of Task 2-1 through 2-6 and the work plan update. A copy will be provided to appropriate EPA and state project personnel.

### Activity 3 - Detailed Site Characterization Studies

The following sections constitute a work plan for remedial investigations to obtain detailed site data for the Skinner Landfill.

Task 3-1 - Installation of Additional Groundwater Monitoring Wells. The objective of installing additional monitoring wells is to:

- o Provide hydrogeological data needed to evaluate groundwater flow conditions and to help guide potential future remedial actions.

- o Provide a groundwater monitoring network to detect any contaminants that may be present.

The previously completed ~~hydrogeologic~~<sup>2</sup> survey and existing boring logs will be reviewed for data pertaining to the geology of the site. Technical specifications and contract documents will be prepared for the drilling, casing, screen installation and development of monitoring wells. Bids will be obtained from qualified contractors before awarding a contract.

Seven groundwater monitoring wells are planned to be installed to define possible groundwater contamination and flow conditions. Three of these will be installed in the area of the lagoon; one will be installed in the direction believed to be upgradient of the lagoon and three down-gradient. The borings will be drilled to the top of rock. The number and locations may be changed as additional site data become available.

The following general procedure will be used to construct these wells:

- o Decontaminate all drilling equipment, pipe and materials before drilling.
- o Drill a 4- to 6-inch exploratory hole to predetermined depths using hollow stem augers or rotary drilling with clean water and steel casing.
- o Collect soil samples continuously down to the water table using a split spoon sampler and at 5-foot intervals or change of strata below the water table.
- o Decontaminate soil sampling equipment between samples.
- o Select desired screen depth, length, and material based upon available well log(s) and other borings.
- o Grout borehole below screen.
- o Install casing with gravel pack around screen, if required, and seal the well annulus above the packing with grout to the surface.
- o Install protective, vented, locking cap.
- o Install protective concrete pad around casing at surface to prevent runoff from entering the well.
- o Fully develop the well.

- o Decontaminate all drilling equipment before proceeding to next hole.
- o Conduct borehole hydraulic conductivity tests on wells.
- o Obtain top of well casing elevations.

All drilling will be logged and observed by qualified personnel.

A report describing the well design and installation will be prepared to provide documentation of data obtained during the well installation program. These data include all boring logs, sample analyses, water level and top of casing elevations, and cross sections of the site.

The cost estimate for monitoring well installation is based on:

- o Seven monitoring wells installed.
- o One hundred seventy-five feet of drilling, casing, and well installation.
- o Twenty samples analyzed for soil classification.
- o Testing for soil contamination included in Task 3-5.
- o All water used in drilling will be disposed of onsite. If this is impossible, all drilling water would have to be contained and acceptably disposed of offsite and at additional cost.

Task 3-2 - Groundwater Sampling and Analysis. Following installation, development, and stabilization of the groundwater monitoring wells, a groundwater sampling and analysis program will be conducted. In addition to the seven wells installed under Task 3-1, an attempt will be made to locate and sample the four wells installed by ATEC in 1982.

Prior to collecting the groundwater samples, the groundwater elevation at each well will be determined. Samples will be collected and analyzed for the complete organic and inorganic analysis data package from the U.S. EPA CLP. One sampling round is assumed for the cost estimate. Subsequent sampling should be conducted if contamination is found.

A report describing the groundwater sampling and analysis program will be prepared. The report will include results from the sampling and testing of residential wells.

To prepare the cost estimate it was assumed that all monitoring wells will be sampled. Sixteen samples, including three blanks and two duplicates, will be analyzed.

Task 3-3 - Residential Well Sampling and Analysis. The objective of this task is to determine if the local groundwater is contaminated with priority pollutants. Of the known 14 residential wells sampled, only two sets of analytical results were available. There are wells on the Skinner property that may never have been sampled. A well use survey will be performed and water will be sampled from the 14 known wells and also from six additional wells located in the vicinity of the Skinner Landfill.

In preparing the cost estimate it was assumed 20 residential wells will be sampled. If contaminants are detected, several rounds of sampling should be considered; however, only one sampling round is included in the cost estimate. Twenty-six samples, including three blanks and three duplicates, will be analyzed for the complete organic and inorganic analysis data package from the U.S. EPA CLP. The data from this task will be included in the report prepared for Task 3-2, Groundwater Sampling and Analysis.

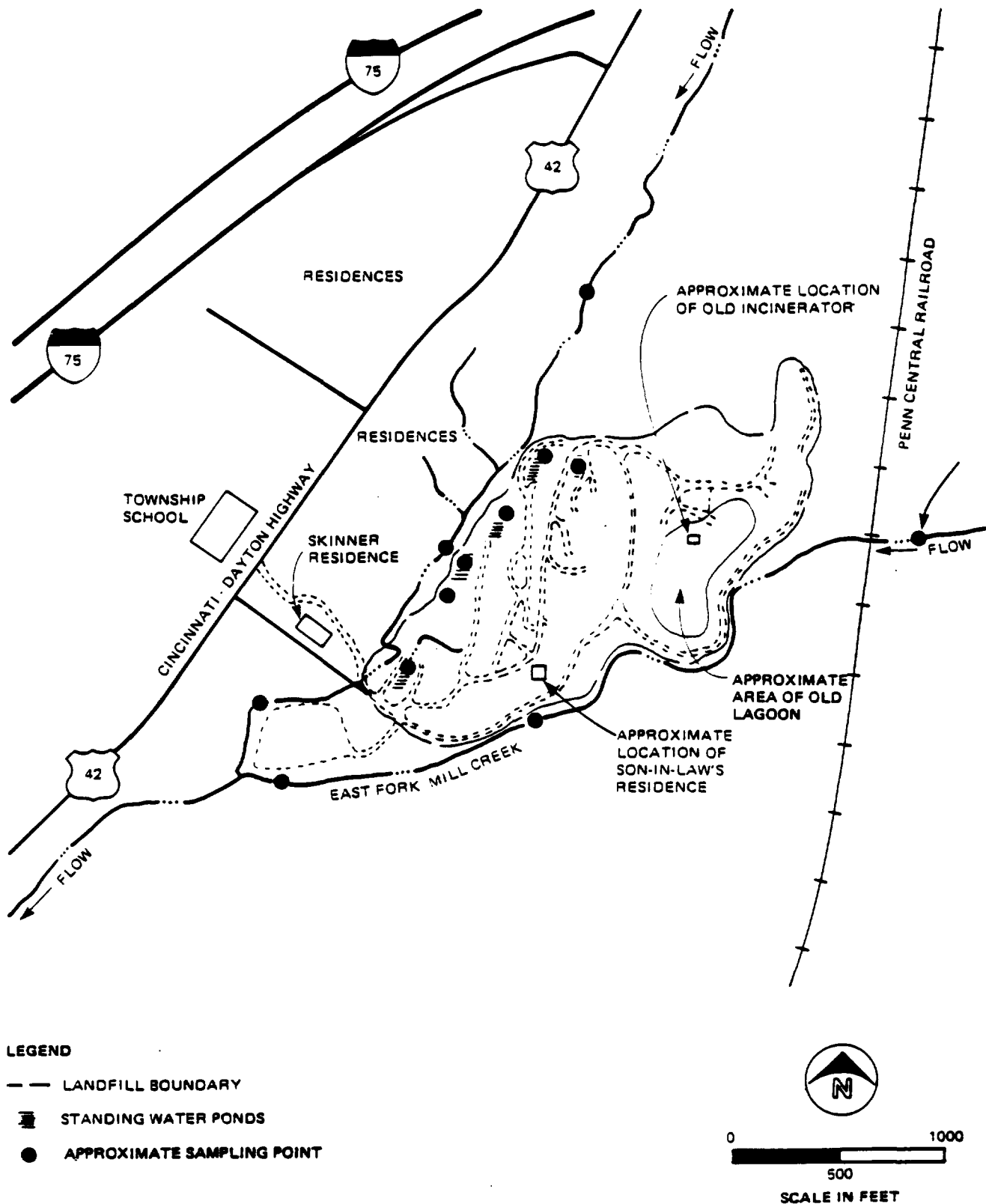
Task 3-4 - Surface Water and Sediment Sampling and Analysis. The purpose of this task is to determine the extent of contamination in the impoundments on the site and in the intermittent streams traversing the base of the landfill. It is known that people fish in at least one of these impoundments. Water in the streams may provide recharge to the shallow aquifer used for local water. Data obtained in this task will be used to determine if offsite remedial measures are required.

Twelve sampling locations are indicated in Figure 3-5. These locations are subject to change after additional site data, especially from the topographic mapping effort, become available. At each location, the surface water and sediment will be sampled. Grab samples will be taken of the surface water. Sediment samples will be taken with a hand coring device. Each core will be composited in 6-inch intervals. Test results from the uppermost sediment samples at each location will be used to determine the need for further analysis. EP toxicity tests will be run on selected samples if the EP toxicity constituents are found in the organic and inorganic analyses.

All samples will be analyzed for the organic and inorganic analysis data package from the EPA CLP.

If significant contamination exists, additional sampling may be necessary. The cost estimate does not include any additional sampling.





A report discussing surface water and sediment contamination will be prepared.

The cost estimate assumes that one surface water sample and one sediment sample per location will be analyzed. Thirty-three samples, including six blanks and three duplicates, will be analyzed for the complete CLP organic and inorganic package. Two EP toxicity tests as well as Level C protection for onsite activities were assumed. Travel expenses to and from the site are not included in the cost estimate since this task can be undertaken during a site visit for other tasks.

#### Task 3-5 - Soil Sampling and Analysis

The objective of this task is to determine the depth and concentration of hazardous materials in parts of the site where these materials may exist. A soil sampling and analysis program is needed at the Skinner Landfill in the following critical areas:

- o The lagoon area where hazardous materials are known to exist.
- o The bank of the creek where leachate seepage has been observed.
- o Possibly contaminated areas around drums and storage tanks.

The boundaries of the landfilled area will be researched through literature and conversations with people having knowledge of the site. The cost estimate assumes 15 borings will be drilled to a depth of 30 feet in the area of the landfill. Selected soil samples from these borings, plus soil samples from the three wells drilled near the landfill will be analyzed.

There may also be soil contamination in the areas where tanks and drums are stored. Five borings to a depth of 10 feet and 10 surface soil samples are proposed in these areas. The locations for these borings and soil samples will be determined after an inspection of the site. Five additional surface soil samples are proposed in the area of the leachate seepage.

For each boring, samples will be composited for analysis at 6-inch intervals to the 1-foot depth and at 1-1/2-foot intervals thereafter. Samples from each location will be analyzed in the field for total volatile organics with an OVA.

Test results from analysis of the uppermost samples at each boring will be used to determine the need for further analysis.

Should contamination be found in significant concentrations, the next lower sample will be analyzed. Analysis will continue with subsequent samples until no significant contamination is encountered. Levels of "significance" will be set by an appropriate regulatory agency. In borings which appear to be very highly contaminated, samples will be selected for analysis at greater intervals to reduce analytical costs. Samples will be spot checked in 6-foot intervals if no contamination is detected in the upper intervals.

Analysis for the full organic and inorganic data package from the EPA CLP will be performed on selected samples from the 20 soil borings and 3 monitoring wells. If EP toxicity constituents are found, EP toxicity tests will be run on selected samples to evaluate offsite disposal of contaminated soil at a landfill.

Selected soil samples will also be index tested for physical characteristics. The results from index testing will be used to determine the ability of site soils to prevent off-site migration of contaminants.

A report describing the soil sampling program will be written to present the test results and to delineate the areal extent and depth of soil contamination.

The cost estimate for soil sampling and analysis is based on:

- o Fifteen surface samples tested for the full organic and inorganic priority pollutant data package.
- o Twenty borings for a total of 500 feet.
- o Thirty selected samples will be tested for index properties.
- o Fifty samples from borings will be analyzed for the full organic and inorganic priority pollutant data package.
- o Level C safety protection will be applicable to all sampling locations.
- o. Qualified personnel will be present during all drilling activities to log soil samples.

Task 3-6 - Biological Studies. The biological study will identify critical receptors in the site area, determine current stresses on these receptors, define pathways of bioaccumulation of contaminants (Table 3-1), and provide the necessary background information to determine the environmental impacts of alternative remedial measures.

Table 3-1  
PRIORITY POLLUTANTS THAT ACCUMULATE IN BIOTA

METALS AND INORGANICS

Arsenic  
Beryllium  
Cadmium  
Chromium  
Copper  
Lead  
Mercury  
Nickel  
Selenium  
Silver  
Thallium  
Zinc

PESTICIDES

Acrolein  
Aldrin  
Chlordane  
DDD  
DDE  
DDT  
Dieldrin  
Endrin and endrin aldehyde  
Heptachlor  
Heptachlor epoxide  
TCDD  
Toxaphene

PBCs AND RELATED COMPOUNDS

Polychlorinated biphenyls  
(6 PCB arochlors)  
2-Chloronaphthalene

HALOGENATED ALIPHATICS

Hexachlorobutadiene  
Hexachlorocyclopentadiene

ETHERS

4-Chlorophenyl phenyl ether  
4-Bromophenyl phenyl ether

MONOCYCLIC AROMATICS

Chlorobenzene  
1,2-Dichlorobenzene  
(o-dichlorobenzene)  
1,3-Dichlorobenzene  
(m-dichlorobenzene)  
1,4-Dichlorobenzene  
(p-dichlorobenzene)  
1,2,4-Trichlorobenzene  
Hexachlorobenzene

PHENOLS AND CRESOLS

Pentachlorophenol  
2,4-Dimethylphenol

PHTHALATE ESTERS

Dimethyl phthalate  
Diethyl phthalate  
Di-n-butyl phthalate  
Di-n-octyl phthalate  
Bis(2-ethylhexyl) phthalate  
Butyl benzyl phthalate

POLYCYCLIC AROMATICS

Acenaphthene  
Acenaphthylene  
Anthracene  
Benzo (a) anthracene  
Benzo (b) fluoranthene  
Benzo (k) fluoranthene  
Benzo (ghi) perylene  
Benzo (a) pyrene  
Chrysene  
Dibenzo (a,h) anthracene  
Fluoranthene  
Indeno (1,2,3-cd) pyrene  
Naphthalene  
Phenanthrene  
Pyrene

NITROSAMINES AND MISCELLANEOUS  
COMPOUNDS

Diphenyl nitrosamine  
Di-n-propyl nitrosamine  
3,3'-Dichlorobenzidine  
1,2-Diphenylhydrazine  
(hydrazobenzene)

Note:

Excerpted and modified from Chapman, P., G.P. Romberg and G. Vigers, 1982. "Design of Monitoring Studies for Priority Pollutants." Journal Water Pollution Control Federation, Vol. 54 Number 3.

Initially, a literature search and a brief field survey will be conducted. The literature survey will be of published and unpublished studies, surveys and investigations performed in the area. The brief field survey will be done by a biologist to characterize the natural environment of the area. The data will be used to refine the scope of potential additional environmental studies and to aid in definition of potential field investigations, including organisms to be tested and contaminants that may be found in the organisms.

If the results of the literature search and the water, sediment and soil sampling indicate potential problems, field investigations may be necessary.

Field investigations may include the following:

- o Survey of stream use (fishing, stock watering, etc.)
- o Bioaccumulation studies of aquatic and terrestrial organisms
- o Color infrared aerial photography to identify areas of stressed vegetation

After the literature search, field survey and analysis of the initial water, sediment and soil sampling results, a report will be submitted. It will present data on the potential critical receptors identified, signs of environmental stress, potential impacts on the environment and other background data. Critical data limitations (if any) will also be presented along with proposals to conduct any needed additional field investigations.

The Order-of-Magnitude cost estimate for this activity includes the literature search, field survey, and limited laboratory analyses of macroinvertebrates. Ten samples of four species of fish will be collected from each pond. Four samples of four species will be tested. A report describing the results of these analyses will be prepared.

#### Activity 4 - Remedial Investigation Report

Task 4-1 - Assess Site Hazards. Data collected during the remedial investigation phase will be evaluated to determine whether the materials at the site present a hazard to human health and welfare or to the environment.

Existing standards will be reviewed to formulate conclusions and recommendations regarding the hazard potential at the site.

A report will be prepared summarizing the hazard evaluation process and presenting the results of the hazard assessment. A copy will be provided to appropriate EPA and state project personnel.

Task 4-2 - Conduct Review Meeting. Following the review of the report, a review meeting will be held with EPA and other appropriate agency personnel to determine remedial action objectives, identify alternative level operable units and associated remedial actions to be addressed in the feasibility study and to discuss the contents of the remedial investigation report.

To determine the viability of the various alternatives, the following factors will be qualitatively evaluated as they relate to the project objectives:

- o The ability to control onsite release or to mitigate offsite impacts (high, medium, low)
- o The adverse environmental impacts of each alternative (high, medium, low)
- o The feasibility, applicability, and reliability of remedial action methods for location and conditions of release (yes, no, potential)

During the review meeting, an agreement will be reached on the remedial action alternatives to be used in the feasibility study.

Task 4-3 - Prepare Remedial Investigation Report. A draft remedial investigation report will be prepared to consolidate and summarize the data collected during the remedial investigation. The report will include a discussion of the operable units and remedial actions considered, recommendations regarding whether or not to proceed with the feasibility study, and the recommended remedial action alternatives that should be included in the feasibility study. The draft report will be submitted to EPA for review.

Review comments will be considered for incorporation into the final report, which will be submitted to EPA for approval.

### 3.3.2 Remedial Investigation/Feasibility Study Estimated Costs/Time Schedule/Deliverables

Table 3-2 shows the estimated costs for the Skinner Landfill RI/FS activities. A preliminary time schedule is shown in Figure 3-6. The following deliverables will be provided for the activities outlined in the RI/FS scope of work.

Table 3-2 (Continued)

Activity	LOW COST ESTIMATE				HIGH COST ESTIMATE				RANGE OF TOTAL COST ESTIMATES	
	<u>\$Engineering</u>	<u>\$Expense</u>	<u>\$Subcontract</u>	<u>Lab Analysis</u>	<u>\$Engineering</u>	<u>\$Expense</u>	<u>\$Subcontract</u>	<u>Lab Analysis</u>	<u>\$ Low</u>	<u>\$ High</u>
3-5 Soil Sampling & Analysis	18,200	8,800	24,900	87,000	27,400	13,100	37,400	130,500	138,900	208,400
3-6 Biological Studies	<u>7,700</u>	<u>3,400</u>	--	<u>24,000</u>	<u>11,500</u>	<u>5,000</u>	--	<u>36,000</u>	<u>35,100</u>	<u>52,500</u>
Subtotal	61,700	28,200	44,100	166,600	92,500	42,200	66,200	250,000	300,600	450,900
4.0 REMEDIAL INVESTIGATION REPORT	11,200	1,300	--	--	16,800	1,900	--	--	12,500	18,700
5.0 EVALUATION OF REMEDIAL ACTION ALTERNATIVES	27,000	1,000	--	--	40,500	1,500	--	--	28,000	42,000
6.0 ALTERNATIVE REMEDIAL ACTION FEASIBILITY REPORT	12,000	1,500	--	--	18,000	2,300	--	--	13,500	20,300
7.0 CONCEPTUAL DESIGN	27,500	1,300	--	--	43,200	2,000	--	--	28,800	45,200
8.0 PROJECT MANAGEMENT	<u>21,000</u>	<u>2,100</u>	--	--	<u>32,000</u>	<u>3,200</u>	--	--	<u>23,100</u>	<u>35,200</u>
TOTAL	201,100	60,100	75,600	247,500	303,900	89,900	113,600	371,400	584,300	878,800

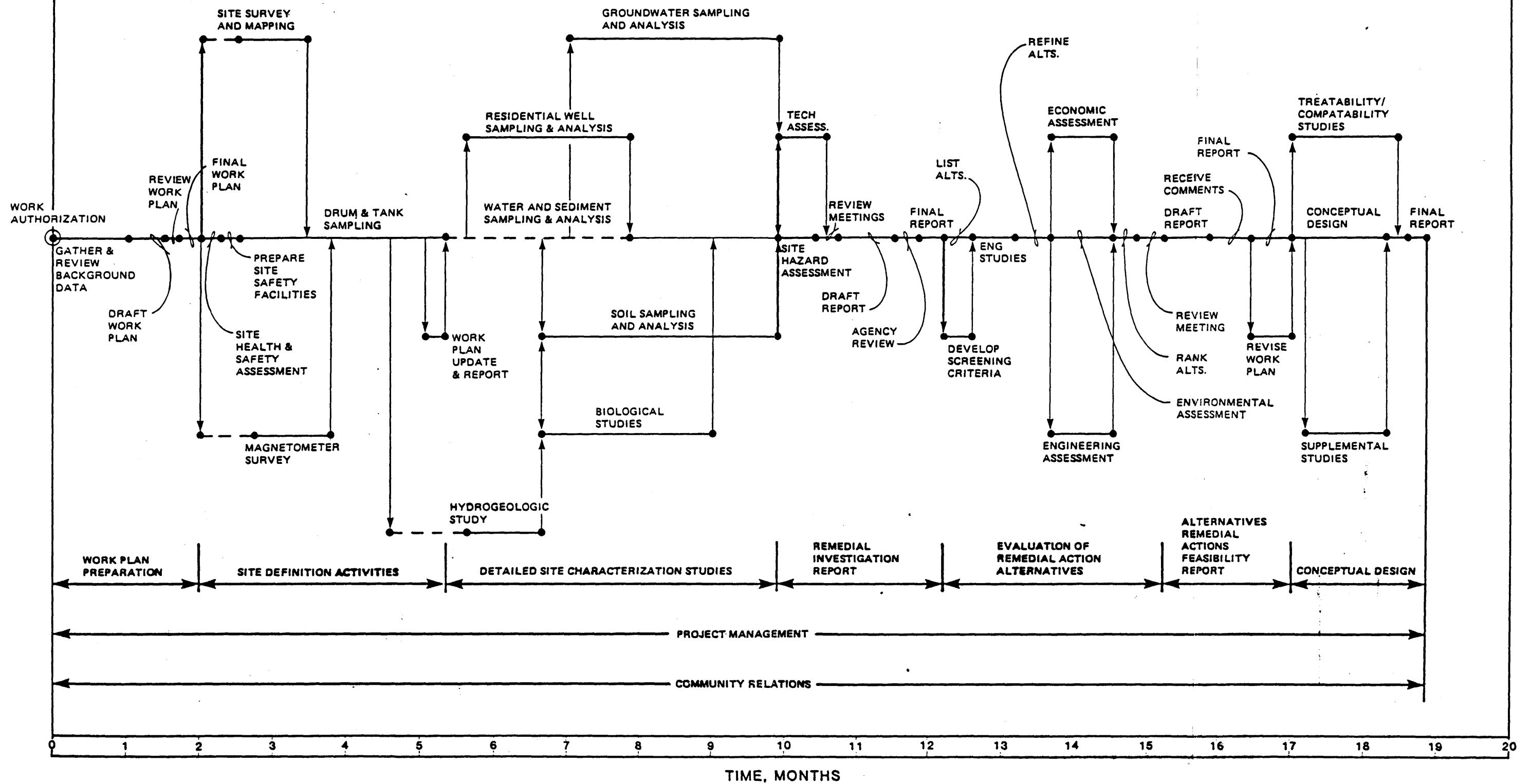
GLT420/20-2

Table 3-2  
COST ESTIMATE AND SCHEDULE FOR THE  
REMEDIAL INVESTIGATION/FEASIBILITY STUDY  
SKINNER LANDFILL SITE  
W65173.00

Activity	LOW COST ESTIMATE				HIGH COST ESTIMATE				RANGE OF TOTAL COST ESTIMATES	
	<u>\$Engineering</u>	<u>\$Expense</u>	<u>\$Subcontract</u>	<u>Lab Analysis</u>	<u>\$Engineering</u>	<u>\$Expense</u>	<u>\$Subcontract</u>	<u>Lab Analysis</u>	<u>\$ Low</u>	<u>\$ High</u>
<b>1.0 WORK PLAN PREPARATION</b>										
1-1 Assemble Project Team	2,300	1,400	--	--	3,400	2,000	--	--	3,700	5,400
1-2 Gather and Review Background Data	4,000	1,500	--	--	6,000	2,000	--	--	5,500	8,000
1-3 Prepare Work Plan	<u>2,900</u>	<u>200</u>	<u>--</u>	<u>--</u>	<u>4,300</u>	<u>300</u>	<u>--</u>	<u>--</u>	<u>3,100</u>	<u>4,600</u>
Subtotal	9,200	3,100	--	--	13,700	4,300	--	--	12,300	18,000
<b>2.0 SITE DEFINITION</b>										
2-1 Prepare Site Health & Safety Assessment	1,000	500	3,400	--	1,500	700	5,100	--	4,900	7,300
2-2 Site Safety Facilities	1,000	8,400	--	--	1,500	12,600	--	--	9,400	14,100
2-3 Site Surveying & Mapping	4,100	1,600	10,500	--	6,100	2,400	15,900	--	16,200	24,400
2-4 Prepare QA Plan	2,300	100	--	--	3,500	200	--	--	2,400	3,700
2-5 Drum & Storage Tank Sampling & Analysis	15,800	9,900	--	80,900	23,700	14,900	--	121,400	106,600	160,000
2-6 Magnetometer Survey	3,800	900	17,600	--	5,700	1,400	26,400	--	22,300	33,500
2-7 Work Plan Update & Report	<u>3,500</u>	<u>200</u>	<u>--</u>	<u>--</u>	<u>5,200</u>	<u>300</u>	<u>--</u>	<u>--</u>	<u>3,700</u>	<u>5,500</u>
Subtotal	31,500	21,600	31,500	80,900	47,200	32,500	47,400	121,400	165,500	248,500
<b>3.0 DETAILED SITE CHARACTERIZATION</b>										
3-1 Installation of Additional Ground-water Monitoring Wells	13,700	5,000	19,200	--	20,500	7,500	28,800	--	37,900	56,800
3-2 Groundwater Sampling & Analysis	11,800	6,300	--	12,100	17,700	9,500	--	18,200	30,200	45,400
3-3 Sampling & Analysis of Residential Wells	5,000	2,000	--	19,700	7,500	3,000	--	29,500	26,700	40,000
3-4 Surface Water & Sediment Sampling Analysis	5,300	2,700	--	23,800	7,900	4,100	--	35,800	31,800	47,800

CLT420/20-1





**FIGURE 3-6**  
**APPROXIMATE SCHEDULE FOR REMEDIAL**  
**INVESTIGATION/FEASIBILITY STUDY**  
**SKINNER LANDFILL**

<u>ACTIVITIES</u>	<u>DELIVERABLES</u>
Activity 1	1. Draft work plan* 2. Final work plan
Activity 2	1. Work plan update and activity report
Activity 3	1. Hydroegological report 2. Groundwater sampling and analysis report 3. Surface water and sediment sampling and analysis report 4. Soil sampling and analysis report
Activity 4	1. Site hazard assessment report 2. List of potential operable units and remedial actions 3. Draft remedial investigation report* 4. Final remedial investigation report
Activity 5	1. Listing of potential alternatives 2. Screening process report 3. Technology assessment report 4. Report on refining alternatives 5. Environmental, engineering and economic assessment report 6. Report on comparative ranking of alternatives 7. Report on comparative ranking review process
Activity 6	1. Draft feasibility report* 2. Final feasibility report
Activity 7	1. Draft conceptual design report* 2. Final conceptual design report

\* Requires EPA and Ohio EPA review or input.

### 3.4 SOURCE CONTROL REMEDIAL ACTIONS

#### 3.4.1 Objective

Source control remedial actions include measures to prevent, reduce, or eliminate contamination by either containing the hazardous wastes in place or removing them from the site.

Potential hazards anticipated to be addressed in the source control remedial actions will include:

- o Hazardous materials
- o Contaminated soil
- o Contaminated groundwater
- o Contaminated surface waters

#### 3.4.2 Remedial Action Alternatives

Alternative source control remedial actions that may be appropriate for the Skinner Landfill site include:

- o No action
- o Extensive monitoring of the site with no further removal or containment activities
- o Excavation and removal of contaminated soil off-site or containment onsite
- o Containing contaminated subsurface areas and groundwater using a cutoff wall, cap and bottom sealing, or a well field with pumping, treatment, and reinjection
- o Collecting contaminated groundwater with onsite treatment and disposal or offsite disposal
- o Treatment of contaminated groundwater in permeable treatment beds
- o Surface water drainage control measures to prevent run-on or runoff; collection for treatment or offsite disposal
- o Removal of drums and tanks containing hazardous wastes

### 3.5 OFFSITE REMEDIAL ACTIONS

#### 3.5.1 Objective

Offsite remedial actions include measures to mitigate the effects of hazardous waste contamination that may have migrated beyond the site.

#### 3.5.2 Remedial Action Alternatives

Alternative offsite remedial measures that may be appropriate for the Skinner Landfill site include:

- o No action

- o Offsite monitoring with no other mitigative measures
- o Abandonment and plugging of downgradient, residential wells and providing an alternative water supply
- o Containing contaminated groundwater by using a cutoff wall, cap and bottom sealing, or a well field with treatment and reinjection
- o Collecting contaminated groundwater for treatment or offsite disposal
- o Treatment of contaminated groundwater in permeable treatment beds

GLT420/12

#### REFERENCES

Hosler, J.L., "Report of Geology and Groundwater Resources, West Chester, Butler County, Ohio." Ohio EPA Southwest District Office. April 22, 1982.

GLT420/12

#### 4.0 COMMUNITY RELATIONS

The purpose of this assessment is to describe the past and current community and agency activities associated with the Skinner Landfill. It will provide U.S. EPA with an understanding of the existing and potential interest in the site by the general public and the local and state agencies. The major participants and issues to consider in developing a Community Relations Plan are identified in the following discussion. U.S. EPA, Region V, will be responsible for developing and implementing the final Community Relations Plan.

This assessment is based on: 1) a review of U.S. and Ohio EPA files on the Skinner site including newspaper articles, and 2) personal interviews with the following individuals:

- o Union Township Trustees: John Buehner, Carlos Todd and Stephen Powell
- o Butler County Health Department: Allen Blevin and C. McConnell
- o Union Township Fire Department: Chief James Detherage
- o Union Township Road Maintenance Department: Robert McGuire
- o Union Elementary School, Principal: Jerry Clark

The only incidence of offsite contamination has been the presence of odors. Currently, the community is awaiting action by the U.S. EPA under the Superfund legislation.

#### 4.1 COMMUNITY RELATIONS BACKGROUND

##### 4.1.1. History of Community Relations Activities

In 1976, a landfill owned by Albert Skinner was reportedly accepting hazardous waste without a permit. After visiting the site, Ohio EPA determined that the owner had accepted and disposed of hazardous wastes in an open pit on the property. High concentrations of heavy metals and pesticides were discovered.

The earliest recorded complaints occurred in 1963 and were from local citizens to the Butler County Health Department. These complaints were concerning the dumping of garbage at the site which is across Cincinnati-Dayton Road from the Union Elementary School.

In August 1963, the Cincinnati Inquirer reported that Albert Skinner was arrested for violating the County Zoning Resolution and was released on \$200 bond. At about that same time, a fire broke out on the site. The Butler County Fire Department was refused access by Mr. Skinner. However, the fire chief was allowed on the site to observe the fire which was a burning pond of liquid.

In May and July of 1976, Union Township Clerk Pat Williams requested information from Ohio EPA on the Skinner Landfill site. She was interested in determining the type of material going into the landfill and what could be done about the recurrent problems at the site.

On April 21, 1976, Mr. Andy Sabol, Health Commissioner of the City of Hamilton, wrote to Joe Moore, the District Sanitarian, about the Skinner Landfill site. He believed that Mr. Skinner was disposing of industrial liquid waste on his property. His letter also mentioned that a fire had occurred on the site April 18, 1976.

In early December 1978, the Butler Post reported the Ohio EPA lawsuit to stop Skinner from operating the landfill. A lower court's decision allowed Mr. Skinner to maintain the landfill, but prohibited him from accepting additional industrial waste at the site. The court also ruled that the EPA failed to prove hazardous materials were leaving the site and therefore the Skinners did not have to remove drums or clean up the site. The court of appeals upheld this ruling and the Ohio Supreme Court declined to hear the case. Ohio EPA was quoted in the article discussing environmental problems resulting from this decision.

#### 4.1.2 Community Relations Issues

Based on a review of agency files and interviews with local officials, the following concerns and issues were identified:

##### **Access to Site**

At the present time, a fence or other means of controlling access to the site does not exist. Children and adults have easy access to the site and the fire chief reports that he has seen people on the site at various times.

##### **Odors**

During the height of the Skinner Landfill operation during the 1970's, citizens complained of odors from fires at the site in the early evening hours. Since the court case in 1980, there have been few problems. Principal Jerry Clark of the Union Elementary School reports that he, his staff

and students sometimes perceive odors from the landfill in the early morning hours, usually when a heavy fog is present.

#### Lack of Knowledge

Local officials and citizens have expressed concern that they do not know exactly what is contained in the Skinner Landfill. They are aware that approximately 50 to 60 trucks per day were dumping at the site during the mid-1970's. There is no information available on what and how much was buried at the site. The extent of the contamination is also unknown.

#### Availability of Information

Local officials are concerned with receiving timely information from a single source. They recommended that when information is released regarding the site, the township board should be notified. A public meeting should be held, if necessary, and then press releases and newsletters issued. If community meetings are necessary, technical people should be present to respond with detailed information to questions from citizens and officials.

#### 4.1.3 Community Relations Participants

Major participants at the Skinner Landfill have been the Ohio EPA and the Butler County Health Department. The citizens who live near the landfill site have expressed their concern to the local government officials and the county health department but have not formed an advisory group to push for site cleanup. This is probably because many local residents are unaware of the site and potential problems. There has been no evidence of offsite contamination.

The Ohio EPA was made aware of the site in 1976. Representatives of Ohio EPA made site visits to confirm the presence of hazardous wastes. This agency pursued cleanup action through the courts and ultimately the courts decided that the material at the Skinner Landfill could remain onsite but no additional material could be disposed of.

When local residents complained of improper landfill operations and the occasional fires, they called the Butler County Health Department. Since the court case was resolved, the incidences of burning waste have been reduced. The Union Elementary School across Cincinnati-Dayton Road from the Skinner Landfill occasionally reports the presence of odors.



## 4.2 COMMUNITY RELATIONS OBJECTIVES AND TECHNIQUES

### 4.2.1 Community Relations Objectives

- o Handle all media and public inquiries through a single central contact. The U.S. EPA, Region V, should supervise the release of all information to the media.
- o Maintain contact with the Union Township officials and Butler County Health Department to provide continual updating throughout the site work and the remedial action period.
- o To date there has been no soil or groundwater pollution on property adjacent to the landfill. If such incidences occur, U.S. EPA should inform nearby residents, businesses, the general public, elected officials and the media. Any major field work and particularly any work that will directly affect individuals or their property will necessitate contacting those concerned.
- o Provide all information, especially technical aspects, in a manner understandable to all interested parties.
- o Provide the public and county agencies a 3-week period to comment on the alternatives identified by the feasibility study before selection of the final corrective actions.
- o Remain sensitive to changes in community or public concerns throughout the site work.

### 4.2.2 Community Relations Techniques

At this time, the EPA is expected to be the lead agency for the Skinner Landfill site. Thus, the Community Relations Plan will be developed and implemented by the the EPA, Region V office in Chicago. Specific staff responsibilities will be identified in the Community Relations Plan. The techniques listed below are suggested methods to meet the community relations objectives outlined in the previous section. Project staff must remain sensitive to community attitudes and must revise the plan as conditions require.

#### o Initial Briefing of Local Officials

An initial briefing of the Butler County Health Department and Union Township officials should occur before any action is taken on the site. This briefing may take place in person or over the telephone. The briefing should describe the steps

and purposes of the planned site investigation and activities.

- o Property Owner Notification

If offsite impacts are identified, all individuals owning property near the site boundaries should be formally notified by letter. This notification should also occur before any onsite work is started.

- o Agency Contacts

Periodically throughout the site work, Butler County and Union Township officials should be contacted about ongoing activities. This contact can be an informal telephone call to keep local officials up to date and to determine if any public concerns or interests have emerged. Other public officials and interested groups may be added to this list as they indicate interest. In addition, these agencies should be notified of the planned community relations activities and any information about to be made available to the public.

- o Press Releases

Press releases and media coverage are expected to be the major avenue for informing the general public. The releases should be issued at major progress points following notification of local officials and the Butler County Health Department. At a minimum, press releases should be issued at the beginning of the onsite investigations; at the completion of the remedial investigation, draft feasibility study, and final feasibility study; and prior to any remedial measures being taken.

- o Public Review

Prior to selection of final remedial actions, the draft feasibility study should be made available for a 3-week public review period. This review will allow input from all interested parties, including public interest and environmental groups, public agencies and officials, and individuals. The final remedial investigation and feasibility study reports should also be made available for public review at the local government offices or public libraries.

GLT420/14

APPENDIX A  
SITE VISIT MEMORANDUM AND PHOTO LOG

MEMORANDUM  
Page 2  
June 3, 1983  
W65173.00  
MEMORANDUM

TO: File

FROM: Dennis E. Totzke  
Remedial Site Project Manager

DATE: June 3, 1983

JOB NO: W65173.00

SITE NO: 01-5V73.0

On May 24, 1983, the following persons and I made a site visit at the Skinner Landfill facility in West Chester, Ohio.

Tom Gilgenbach	CH2M HILL
Randy Weltzin	CH2M HILL
Bill Faught	CH2M HILL
Don Bruce	U.S. EPA, Region V

Our site safety plan, based upon limited file material, classified the site as a Level B area with downgrading to Level C if monitoring equipment readings were low. Upon arrival at the site, we noticed trucks entering the site. To gain access to the landfill area in which wastes were reportedly disposed of, we were directed to an area of the site where a private residence was located. Following a discussion with the residence owner and after observing continued traffic into and out of the site, we decided to conduct a windshield survey of the landfill with full equipment monitoring. After the windshield survey, we moved to the southeast side of the landfill and set up a command post for a Level C inspection of the site based upon the following information:

1. There was a brisk breeze from the northwest and it was a fairly cool day (60° to 65°F).
  2. There was a significant amount of traffic (truck, automobile and bulldozer) on the site.
  3. The monitoring equipment (HNU, HCN and explosimeter) did not detect any contaminants.
- A Level C walking inspection was conducted of the south and west sides of the site. Since no contaminants were detected

MEMORANDUM  
Page 3  
June 3, 1983  
W65173.00

during the initial inspection, we downgraded to Level D for the trip back to the command post.

The following comments reflect the observations of the CH2M HILL members of the visitation team:

1. There is no noticeable boundary between the Skinner Landfill site and the adjacent properties. The Skinner residence and that of a relative were actually within the landfill.
2. An extensive network of dirt roads criss-crosses the hilly site.
3. There is an enormous amount of junk material on the site. Included in this category are abandoned cranes, earth movers, bulldozers, truck and car bodies, buildings, freight cars, bulk tanks, drums, tires, lumber, brush, and miscellaneous junk.
4. The northeast section of the site appears to be currently in operation. A bulldozer was working in a recently graded area.
5. High HNU readings (150 ppm and 400 ppm) were detected in two bulk tanks.
6. Drums are located throughout the site in various storage configurations.
7. A large number of bulk tanks are located throughout the site, generally along the side of the various dirt roads.
8. A creek runs along the north boundary of the site.
9. Because of the large volume of material in the landfill and the large number of trees and bushes on the site, access to some areas was severely restricted.

GLT420/1

PHOTO LOG  
SKINNER LANDFILL  
01-5V73.0  
W65173.0

<u>Photo Number</u>	<u>Description</u>
1-1	Command post location near southeastern corner of site (looking southeast).
1-2	View of debris and standing water alongside westernmost road onsite (looking north).
1-3	Similar to photo 1-2.
1-4	Typical pile of debris.
1-5 thru 1-8	Sweep view (west to east) of excavated area located just to the east of the road pictured in photos 1-1 through 1-3.
1-9 thru 1-11	Sweep view (90° south to west) of southernmost lagoon located near west boundary of site.
1-12	Photo of fish apparently caught in the northernmost lagoon.
1-13 thru 1-17	Sweep view (90°, northwest to northeast) of northernmost lagoon located in the northwest corner of the site.
1-18 and 1-19	View of rubber and wood debris (looking east) just southeast of excavated area shown in photos 1-5 through 1-8.
1-20 and 1-21	Trailer tank body.
1-22	Automobile engines and building debris.
1-23	Asphalt trailer tank.
1-24	Bulk tanks and car bodies.
1-25	Empty and full drums.
1-26	Miscellaneous steel debris.

<u>Photo Number</u>	<u>Description</u>
1-27	Inoperative crane.
1-28	Large bulk tank that produced an HNU reading of 450 ppm.
1-29	Large bulk tank and smaller bulk tank that produced readings of 150 ppm and 450 ppm.
1-30 and 1-31	Abandoned drums.
1-32 thru 1-34	Sweep view (90°, east to south) of a concentrated collection of miscellaneous debris, drums, and bulk tanks.
2-1	Abandoned bulldozer.
2-2	Refuse and debris.
2-3 and 2-4	Views of the action portion of the landfill (northeast corner) looking to the east.
2-5 thru 2-8	Photos of numerous bulk tanks located along various roads onsite.
2-9	Abandoned truck body.
2-10	Abandoned storage tanks and miscellaneous debris.
2-11	Abandoned processing equipment.

GLT420/2

# SDMS US EPA REGION V

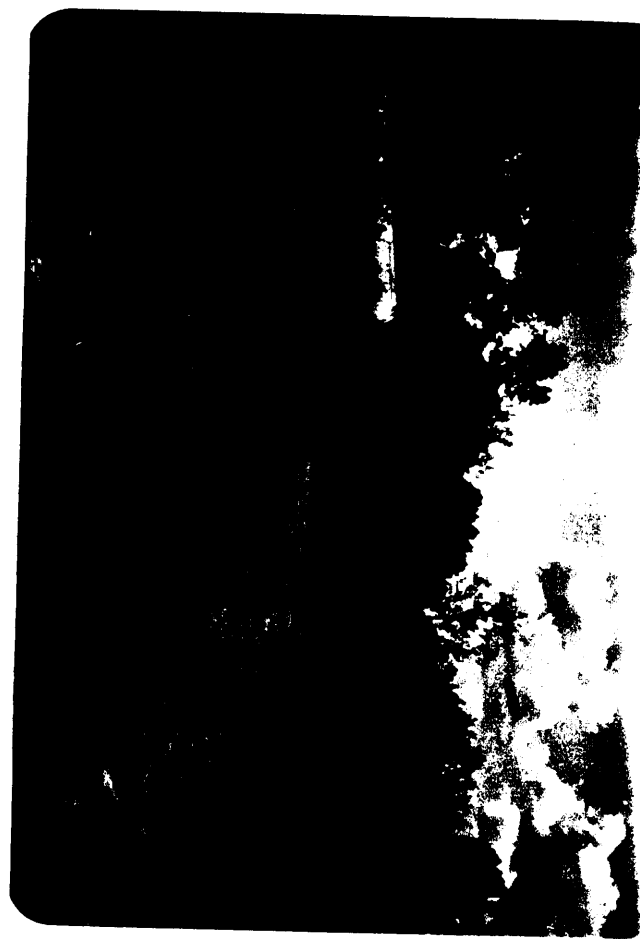
## COLOR-RESOLUTION

### IMAGERY INSERT FORM

The following page(s) of this document include color or resolution variations.  
 Unless otherwise noted, these pages are available in monochrome. The original document is available for viewing at the Superfund Records Center.

<b>SITE NAME</b>	SKINNER
<b>DOC ID #</b>	99529
<b>DESCRIPTION OF ITEM(S)</b>	PHOTOGRAPHS
<b>REASON WHY REMOVED</b>	____ COLOR <b>OR</b> <u>  X  </u> RESOLUTION (BLACK & WHITE)
<b>DATE OF ITEM(S)</b>	05-18-1982
<b>NO. OF ITEMS</b>	24
<b>PHASE</b>	AR
<b>OPERABLE UNITS</b>	
<b>LOCATION</b>	Box # <u>  1  </u> Folder # <u>  1  </u> Subsection <u>          </u>
<b>PHASE</b> (AR DOCUMENTS ONLY)	<u>  X  </u> Remedial    ____ Removal    ____ Deletion Docket <u>  X  </u> Original ____ Update # ____ Volume <u>  1  </u> of <u>  9  </u>
<b>COMMENT(S)</b>	





SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-2

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

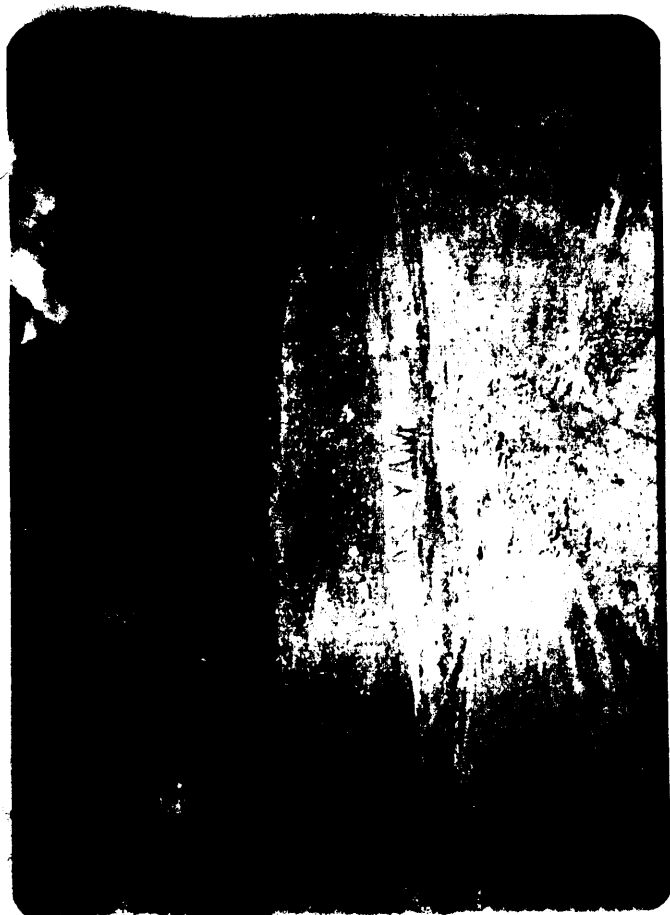
1-1

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-4

CH2M HILL W65173.00  
MAY 24'83

1-3



SKINNER  
CH2M HILL W6517.00  
MAY 24'83

1-6

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-5

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-8

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-7



SKINNER  
CH2M HILL W65173.00  
MAY 24'83

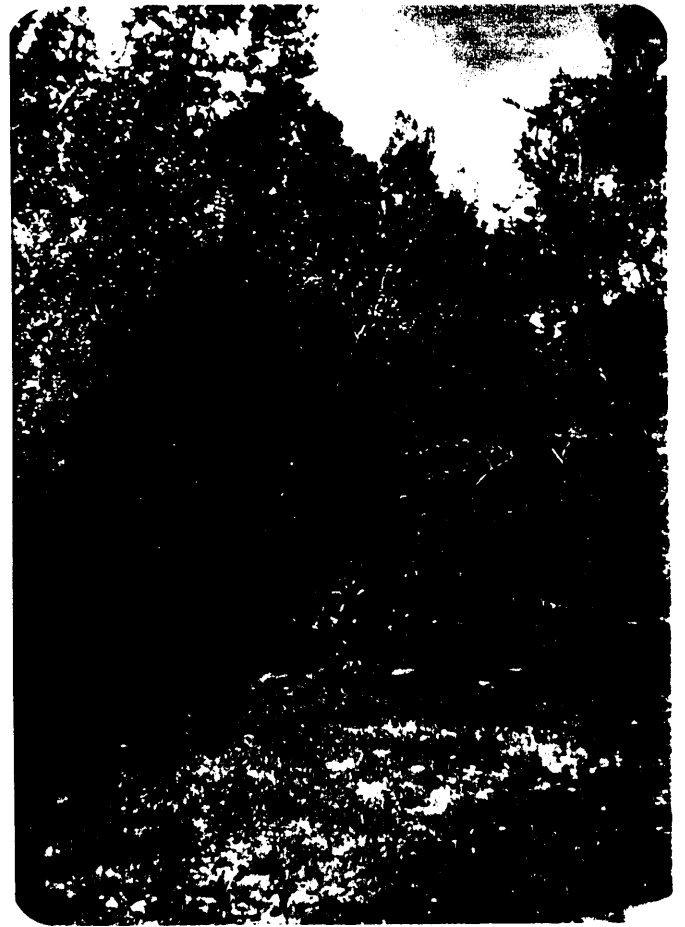
1-10

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-12

SKINNER  
CH2M HILL W65173.00  
MAY 24'83



SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-14

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-13

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

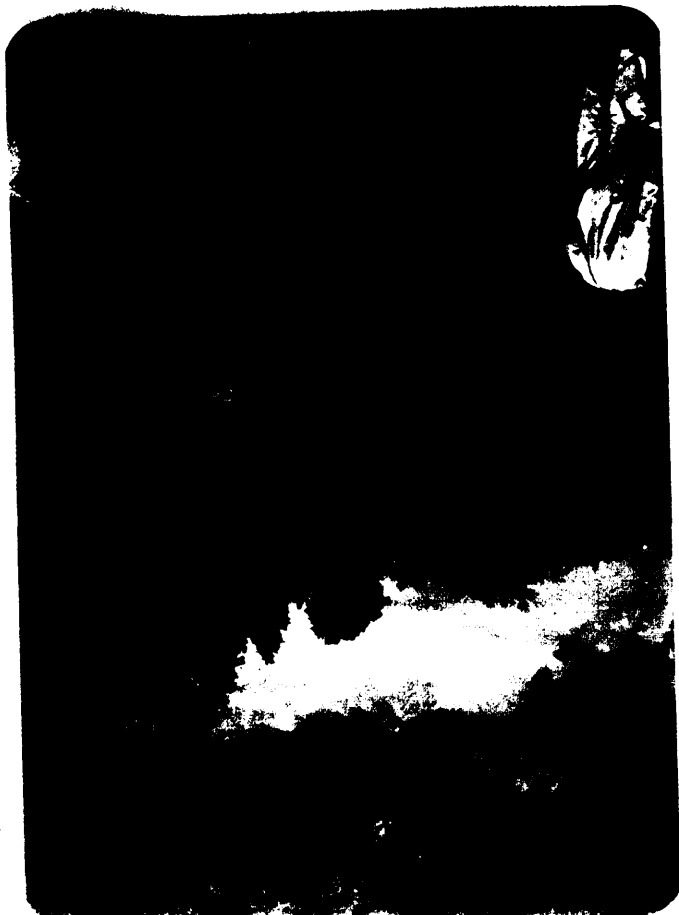
1-16

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-15

1-15





SKINNER  
CH2M HILL W65173.00  
MAY 24'83

PAID  
OFFICE  
MAY 24 1983

1-18

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

PAID  
OFFICE  
MAY 24 1983

1-17

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-20

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

PAID  
OFFICE  
MAY 24 1983

PAID  
OFFICE  
MAY 24 1983

1-19



SKINNER  
CH2M HILL W65173.00  
MAY 24'83

THIS IS A  
MANUFACTURED  
BY KODAK  
PAPER  
FABRIQUE  
PAR KODAK

1-22

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-21

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-24

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-23



SKINNER  
CH2M HILL W65173.00  
MAY 24'83

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

SKINNER  
CH2M HILL W65173.00  
MAY 24'83



SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-30

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-32

SKINNER  
CH2M HILL W65173.00  
MAY 24'83





SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-34

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

2-2

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

1-33

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

2-1



SKINNER  
CH2M HILL W65173.00  
MAY 24'83

2-4

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

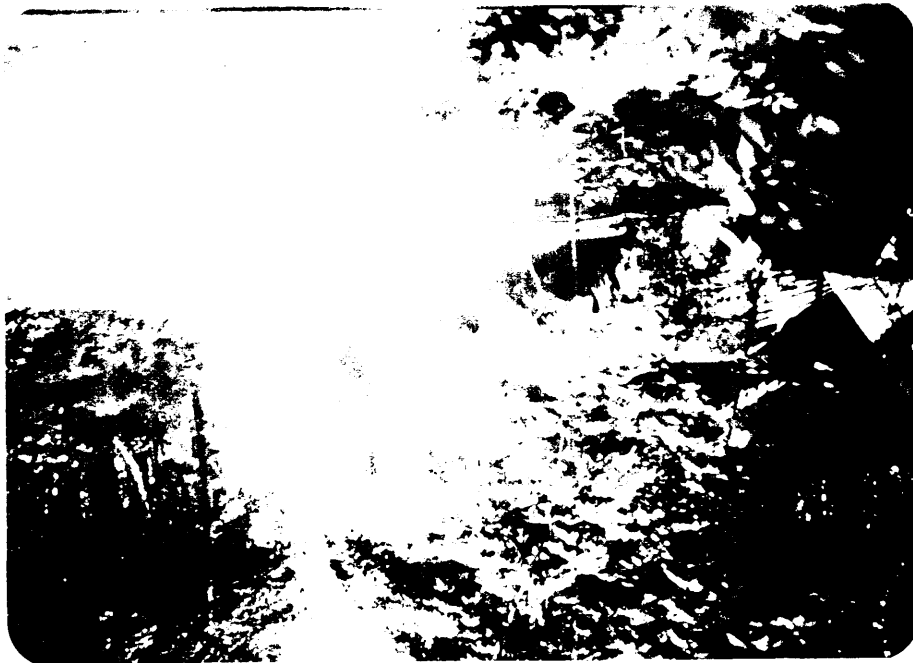
3  
2-4

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

2-4

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

2-5



SKINNER  
CH2M HILL W65173.00  
MAY 24'83

2-8

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

2-10

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

2-7

SKINNER  
CH2M HILL W65173.00  
MAY 24'83

2-9



SKINNER  
CH2M HILL W65173.00  
MAY 24'83

2-11



APPENDIX B  
SITE CHRONOLOGY

## CHRONOLOGICAL FILE

Date: 04/02/63  
Document No.: 00036  
Key Word: Legal Action  
Description: Operating Industries, Inc., requests permission to conduct a sanitary landfill operation on the Skinner property in Union Township. Principals of Operating Industries, Inc., are Albert Skinner, Skinner Sand and Gravel Company, and George Solomon of Cincinnati, Ohio.

Date: 04/09/63  
Document No.: 00036  
Key Word: Legal Action  
Description: Butler County Board of Health gives its approval for use of the site as a sanitary landfill.

Date: 06/25/63  
Document No.: 00036  
Key Word: Community Relations  
Description: Union Township Improvement Association requests the Butler County Health Department to investigate the operation of the Skinner Dump claiming it to be a dangerous nuisance.

Date: 08/07/63  
Document No.: 00036  
Key Word: Community Relations  
Description: The Enquirer prints "Dump Proprietor Faces Zone Charge."

Date: 12/31/63  
Document No.: 00036  
Key Word: Community Relations  
Description: The Journal News prints, "Skinner Landfill Called Low Priority Item."

Date: 00/00/64  
Document No.: 00036  
Key Word: Generators/Waste Inventory  
Description: Materials containing cyanide are confirmed to be disposed of at the site.

Date: 04/18/76  
Document No.: 00011  
Key Word: Site Data  
Description: Union Township Fire Department responds to a fire of old tires, skids, and

debris, as well as grass at the Skinner Landfill. The fire occurred nearby a lagoon observed to be filled with a black, oily liquid.

Date: 04/19/76  
Document No.: 00036  
Key Word: Community Relations  
Description: Area resident (also a Union Township trustee) reports burning on the site causing heavy smoke and odor of chemicals.

Date: 04/21/76  
Document No.: 00011  
Key Word: Site Data  
Description: Ohio EPA commences investigation of the Skinner Landfill site located in Butler County, Ohio.

Date: 04/21/76  
Document No.: 00011  
Key Word: Site Data  
Description: Hamilton City Health Commissioner informs the SWDO that the health department suspects that a Mr. Albert Skinner is disposing of industrial liquid wastes from the Chem-Dyne Corp. industrial waste storage plant on his property at 8750 Cincinnati-Dayton Road. Ohio EPA investigation into the matter is requested.

Date: 04/21/76  
Document No.: 00011  
Key Word: Generators/Waste Inventory  
Description: Ohio EPA questions the Chem-Dyne Corp. to determine its business with the Skinners. Chem-Dyne denies hauling or disposing of any wastes with the Skinners.

Date: 04/22/76  
Document No.: 00011  
Key Word: Site Data  
Description: Ohio EPA and SWOAPC meet with the Skinners and Mr. Kovak of Chem-Dyne in an attempt to investigate the landfill. Both Kovak and Skinner deny disposing of industrial wastes at the landfill. Ohio EPA and SWOAPC are prevented from investigating the area of the fire and

the reported lagoon by Mr. Skinner.

Date: 04/22/76  
Document No.: 00011  
Key Word: Community Relations  
Description: Mrs. H. B. Collins, private citizen and nearby resident, complains to the SWOAPC that she smells a very strong varnish or turpentine-type odor coming from the landfill area.

Date: 04/26/76  
Document No.: 00011  
Key Word: Legal Action  
Description: Butler County Common Pleas Court Judge Fred B. Cramer grants Ohio EPA a search warrant to enter the Skinner property to investigate.

Date: 04/26/76  
Document No.: 00011  
Key Word: Site Data  
Description: Ohio EPA, Butler County Health Department, and SWOAPC investigate site accompanied by several sheriff's detectives. The old garbage dump, pit, and lagoon area are inspected. The entire area is noticed to be recently graded and excavated. A very strong chemical odor is detected. Skinner claims to have graded the area on the afternoon of 4/22/76, "to start an orchard." The area is photographed and liquid samples are taken from surface puddles.

Date: 04/28/76  
Document No.: 00011  
Key Word: Site Data  
Description: J. Ryan, Ryan Engineering, contacts Ohio EPA indicating he had aerial photos taken of the Skinner property on February 7, 1976, as part of his sanitary sewer design work for Butler County. Ohio EPA reviews the photos and gains valuable information. One photo shows a liquid waste lagoon at the exact spot where recent grading and excavating had been done by the Skinners.

Date: 05/03/76  
Document No.: 00008  
Key Word: Sampling/Testing

<u>Description:</u>	Ohio Department of Health samples private wells in the area. No contamination of area well water was indicated by the results.
<u>Date:</u>	05/03/76
<u>Document No.:</u>	00011
<u>Key Word:</u>	Legal Action
<u>Description:</u>	Search warrants are obtained to investigate the Chem-Dyne warehouse and the Skinner Landfill from the Butler County Common Pleas Court Judge Fred B. Cramer.
<u>Date:</u>	05/03/76
<u>Document No.:</u>	00011
<u>Key Word:</u>	Site Data
<u>Description:</u>	Ohio EPA receives reports that the Skinners had been trucking unknown materials off the premises.
<u>Date:</u>	05/04/76
<u>Document No.:</u>	00011
<u>Key Word:</u>	Site Data
<u>Description:</u>	Ohio EPA and Butler County Sheriff's Department arrive onsite with heavy excavating equipment to inspect the site and excavate the old lagoon area. Skinner is ordered to remove a bulldozer he claims to be broken down which is completely blocking the entrance to the old lagoon area. Ohio EPA threatens to have the bulldozer moved.
<u>Date:</u>	05/04/76
<u>Document No.:</u>	00011
<u>Key Word:</u>	Site Data
<u>Description:</u>	Skinner claims to remember burying war-type hazardous materials on the site, stating that he buried nerve gas, mustard gas, phosphorus, incendiary bombs, flame throwers, cyanide ash, and other explosive devices. Ohio EPA is warned by the Skinners that excavation of the old lagoon area could cause fatal explosions.
<u>Date:</u>	05/04/76
<u>Document No.:</u>	00011
<u>Key Word:</u>	Legal Action
<u>Description:</u>	Meeting is held to discuss the legal aspects of the investigation with regards to the possibility of war-type

hazardous materials buried onsite.  
Meeting participants are: Ohio EPA,  
City of Hamilton, Butler County Sheriff,  
and J. Willard, Attorney for the  
Skinners.

Date: 05/06/76  
Document No.: 00011  
Key Word: Legal Action  
Description: Military assistance is requested and  
obtained through the U.S. EPA to  
continue investigation of the landfill  
in a safe manner in view of the  
Skinners' claims regarding the dumping  
of war-type hazardous materials.

Date: 05/10/76  
Document No.: 00011  
Key Word: Legal Action  
Description: Butler County Common Pleas Court Judge  
Fred B. Cramer grants Ohio EPA and the  
U.S Army a search warrant to continue  
investigation of the landfill.

Date: 05/11/76  
Document No.: 00011  
Key Word: Site Data  
Description: Ohio EPA, U.S. Army Special Military  
Unit, Butler County Sheriff's Department  
and other support personnel enter the  
Skinner property to execute the third  
search warrant. The old lagoon area is  
excavated and observations are  
documented. Seven samples of the  
various industrial wastes are collected.  
Photographs are taken as excavation  
progresses.

Date: 06/01/76  
Document No.: 00022  
Key Word: Site Data  
Description: J.L. Hosler, Geologist Ohio EPA, submits  
Report of Geology and Groundwater  
Resources West Chester, Butler County,  
Ohio.

Date: 06/21/76  
Document No.: 00009  
Key Word: Sampling/Testing  
Description: Results of the May 11, 1976, Ohio EPA  
sampling are released. Analyses show  
several pesticide intermediate compounds  
were present in the samples as well as

cyanide, cadmium, chromium, lead,  
mercury, zinc, copper, and phenol.

<u>Date:</u>	07/29/76
<u>Document No.:</u>	00026
<u>Key Word:</u>	Sampling/Testing
<u>Description:</u>	H.C. Nutting Company completes drilling on the site, obtaining core samples to determine the possibility of an impervious strata existing between the material in the landfill and the groundwater.
<u>Date:</u>	11/26/76
<u>Document No.:</u>	00029
<u>Key Word:</u>	Sampling/Testing
<u>Description:</u>	N. Williams, Ohio SWDO, contacts H. Holbrock, of Holbrock, Johnson, Bressler and Houser, indicating that soil borings obtained by H.C. Nutting Company on 7/29/76 for Albert Skinner were not made at sufficient depths to permit reasonable and logical conclusions. Williams requests Skinner to conduct an additional geological investigation at the site.
<u>Date:</u>	07/21/77
<u>Document No.:</u>	00011
<u>Key Word:</u>	Legal Action
<u>Description:</u>	Ohio EPA personnel meet with the assistant attorney general of the SWDO to discuss legal action against Skinner.
<u>Date:</u>	07/22/77
<u>Document No.:</u>	00011
<u>Key Word:</u>	Site Data
<u>Description:</u>	J. Zorn of Ryan Engineering takes aerial slides of the Skinner Landfill as he had done in February 1976 for the firm's sewer design project. Zorn reports open burning in the disposal site area.
<u>Date:</u>	07/25/77
<u>Document No.:</u>	00011
<u>Key Word:</u>	Site Data
<u>Description:</u>	Ohio EPA inspects site with Albert and John Skinner. Observations are made noting changes in the landfill condition since the May 1976 investigations.
<u>Date:</u>	08/22/77
<u>Document No.:</u>	00032

<u>Key Word:</u>	Legal Action
<u>Description:</u>	Legal proceedings are initiated by the State of Ohio against the Skinners in the Butler County Court of Common Pleas.
<u>Date:</u>	10/00/78
<u>Document No.:</u>	00036
<u>Key Word:</u>	Community Relations
<u>Description:</u>	The <u>Cincinnati Enquirer</u> prints, "More Disposal of Chemicals Need Permit, Court Rules."
<u>Date:</u>	10/30/78
<u>Document No.:</u>	00036
<u>Key Word:</u>	Community Relations
<u>Description:</u>	The <u>Cincinnati Post</u> prints, "Judge Rules Out Landfill Danger But Limits Use."
<u>Date:</u>	01/00/79
<u>Document No.:</u>	00032
<u>Key Word:</u>	Legal Action
<u>Description:</u>	Court of Common Pleas, Butler County, Ohio, enters a final judgment enjoining the Skinners from continued use of their property as a disposal site. Court refuses to issue a mandatory injunction compelling the Skinners to remove the accumulated wastes present on the site.
<u>Date:</u>	08/01/79
<u>Document No.:</u>	00032
<u>Key Word:</u>	Legal Action
<u>Description:</u>	Butler County Court of Appeals affirms the Court of Common Pleas opinion of January 1979.
<u>Date:</u>	08/13/79
<u>Document No.:</u>	00031
<u>Key Word:</u>	Legal Action
<u>Description:</u>	Ohio EPA requests the Attorney General's Office to appeal the Court of Appeals, First Appellate District of Ohio, Butler County, Ohio, decision in <u>State of Ohio, ex rel. Ned E. Williams, et al., versus Albert Skinner and Mrs. Albert Skinner, dba The Skinner Landfill</u> , No. CA79-02-0010, filed August 1, 1979.
<u>Date:</u>	11/28/79
<u>Document No.:</u>	00010
<u>Key Word:</u>	Legal Action
<u>Description:</u>	Enforcement Division requests EDO to conduct a reconnaissance survey at the



Skinner Landfill on December 12, 1979.

Date: 12/12/79  
Document No.: 011  
Key Word: Site Data  
Description: Proposed reconnaissance survey is postponed pending review of Ohio EPA files.

Date: 12/13/79  
Document No.: 00011  
Key Word: Legal Action  
Description: Outside perimeter of site is traversed as part of the requested reconnaissance survey. Observations are made offsite.

Date: 09/10/80  
Document No.: 00012  
Key Word: FIT/TAT/REM Activities  
Description: FIT attempts to perform an onsite inspection at the site, but is refused entrance by Mrs. Skinner. FIT completes a file search on the site.

Date: 09/16/80  
Document No.: 00012  
Key Word: FIT/TAT/REM Activities  
Description: Ohio EPA completes the preliminary assessment of the site.

Date: 07/19/82  
Document No.: 00014  
Key Word: Sampling/Testing  
Description: Site is drilled and four monitoring wells are installed as part of the Mitre Program. Drilling is completed 7/22/82.

Date: 07/27/82  
Document No.: 00015  
Key Word: Sampling/Testing  
Description: FIT conducts water sampling at monitoring wells installed 7/19/82 through 7/22/82.

Date: 09/03/82  
Document No.: 00017  
Key Word: FIT/TAT/REM Activities  
Description: FIT completes documentation of site location and inspection information.

Date: 09/09/82  
Document No.: 00034  
Key Word: Legal Action

Description:

Mrs. Skinner is informed by the Ohio EPA that the Skinner Landfill has been submitted to the U.S. EPA for remedial actions financed by Superfund.

Date:

04/00/83

Document No.:

00036

Key Word:

Generators/Waste Inventory

Description:

U.S. EPA conducts a responsible party search of the Skinner Landfill site.

GLT420/output

APPENDIX C  
BORING LOGS

# GENERAL ENFORCEMENT

~~CONFIDENTIAL~~

DRILLING LOG			Page <u>1</u> of <u>2</u>		
State <u>Ohio</u>	Start Date <u>    </u>				
Site <u>Skinner Landfill</u>	Completion Date <u>July 20, 1982</u>				
Boring No. <u>B-5</u>	Ground El. <u>    </u>				
Drilling Firm <u>ATEC</u>	Groundwater El. <u>    </u>				
Type of Drill <u>    </u>	at completion <u>    </u>				
Driller <u>    </u>	after <u>    </u> days <u>    </u>				
Geologist <u>Micheal McCarrin</u>	Total Depth of Boring <u>16.5'</u>				

Elev.	Depth	Description	Blow Count	Sample No.	Remarks
	0	GROUND SURFACE			
	1	<u>Silty Sand, brown</u>	4/7/23	1	damp
	2				
	3	<u>Sandy Silty Clay, brown-tan</u>	4/6/6	2	moist
	4				
	5				
	6		3/5/4	3	moist
	7				
	8				
	9				
	10				

State OhioBoring No. B-5Site Skinner LandfillPage 2 of 2

Elev.	Depth	Description	Blow Count	Sample No.	Remarks
	11		2/4/5	4	very moist
	12				
	13				
	14				
	15				
	16	Shale, grey	7/13/15	5	wet
	17	End of Boring			
		Well Construction: - Screen set from 12.0 to 15.0 feet - Sand from 11.0 to 15.0 feet - Bentonite from 9.0 to 11.0 feet - Cement grout from 0.0 to 9.0 feet - Well protector casing - 2" PVC well casing - 3'-0.010" PVC screen			

# DRILLING LOG

Page 1 of 2

State Ohio

Start Date July 20, 1982

Site Skinner Landfill

Completion Date July 20, 1982

Boring No. B-6

Ground El. \_\_\_\_\_

Drilling Firm ATEC

Groundwater El.  
at completion \_\_\_\_\_

Type of Drill \_\_\_\_\_

after \_\_\_\_\_ days \_\_\_\_\_

Driller \_\_\_\_\_

Total Depth of Boring 19.0'

Geologist Micheal McCarrin

Elev.	Depth	Description	Blow Count	Sample No.	Remarks
	0	GROUND SURFACE			
	1	<u>Silty Sand</u> , brown, with gravel	10/ 30/24	1	damp
	2				
	3		26/ 25/22	2	damp
	4				
	5	<u>Sandy Silt</u> , brown	19/ 14/17	3	damp
	6				
	7				
	8				
	9				
	10				

State OhioBoring No. 8-6Site Skinner LandfillPage 2 of 2

Elev.	Depth	Description	Blow Count	Sample No.	Remarks
	11		16/ 21/22	4	moist
	12				
	13				
	14				
	15				
	16		7/6/8	5	wet
	17				
	18	<u>Sand</u> , grey	8/9/10	6	wet
	19	End of Boring			
		Well Construction: - Screen set from 16.0 to 19.0 feet - Sand from 12.0 to 19.0 feet - Bentonite from 10.0 to 12.0 feet - Cement grout from 0.0 to 9.0 feet - Well protector casing - 2" PVC well casing - 3'-0.010" PVC screen			

# DRILLING LOG

Page 1 of 3

State Ohio

Start Date July 20, 1982

Site Skinner Landfill

Completion Date July 21, 1982

Boring No. B-7

Ground El. \_\_\_\_\_

Drilling Firm ATEC

Groundwater El. \_\_\_\_\_  
at completion \_\_\_\_\_

Type of Drill \_\_\_\_\_

after \_\_\_\_\_ days \_\_\_\_\_

Driller \_\_\_\_\_

Total Depth of Boring 29.0'

Geologist Micheal McCarrin

Elev.	Depth	Description	Blow Count	Sample No.	Remarks
	0	GROUND SURFACE			
	1	<u>Silty Sand</u> , brown		1	dry
	2				
	3	<u>Clayey Silt</u> , brown		2	damp
	4				
	5				
	6		16/30/ 15	3	damp
	7				
	8				
	9				
	10				



State OhioBoring No. B-7Site Skinner LandfillPage 2 of 3

Elev.	Depth	Description	Blow Count	Sample No.	Remarks
	11		17/20/ 30	4	moist
	12				
	13				
	14	<u>Silty Sand</u> , brown with gravel			
	15				
	16		18/25/ 29	5	
	17				moist
	18				
	19				
	20	<u>Silty Sand</u> , grey with gravel			
	21		8/10/ 12	6	
	22				
	23				wet
	24				
	25				
	26		43/40/ 29	7	wet
	27				
	28				
	28	<u>Clayey Till</u> , brown			moist
	29	End of Boring	46/36/ 54	8	

State Ohio

Boring No. B-7

Site Skinner Landfill

Page 3 of 3

Elev.	Depth	Description	Blow Count	Sample No.	Remarks
		Well Construction: - Screen set from 22.0 to 25.0 feet - Sand from 21.0 to 25.0 feet - Cement grout from 0.0 to 21.0 feet - Well protector casing - 2" PVC well casing - 3'-0.010" PVC screen			

# DRILLING LOG

Page 1 of 2

State Ohio

Start Date July 21, 1982

Site Skinner Landfill

Completion Date July 21, 1982

Boring No. B-8

Ground El. \_\_\_\_\_

Drilling Firm ATEC

Groundwater El. \_\_\_\_\_  
at completion \_\_\_\_\_

Type of Drill \_\_\_\_\_

after \_\_\_\_\_ days \_\_\_\_\_

Driller \_\_\_\_\_

Total Depth of Boring 19.0'

Geologist Micheal McCarrin

Elev.	Depth	Description	Blow Count	Sample No.	Remarks
	0	GROUND SURFACE			
	1	<u>Silty Sand</u> , brown	12/15/ 15	1	dry
	2	<u>Clayey Silt</u> , brown with sand and gravel			dry
	3		26/20/ 14	2	
	4				very moist
	5				
	6		16/30/ 15	3	
	7				
	8				
	9				
	10				

State OhioBoring No. B-8Site Skinner LandfillPage 2 of 2

Elev.	Depth	Description	Blow Count	Sample No.	Remarks
	11		14/19/ 27	4	moist
	12				
	13				
	14				
	15	<u>Shale</u> , grey			dry
	16		100 for 5"	5	
	17				
	18	End of Boring			dry
	19		52/100 for 4"	6	
	20	Well Construction: - Boring bentonited from 15.0 to 19.0 feet - Screen set from 12.0 to 15.0 feet - Sand from 10.0 to 12.0 feet - Bentonite seal from 8.5 to 10.0 feet - Cement grout from 0.0 to 8.5 feet - Well protector casing - 2" PVC well casing - 3'-0.010" PVC screen			



# THE H. C. NUTTING COMPANY

GEOTECHNICAL AND TESTING ENGINEERS

SINCE 1921

4120 AIRPORT ROAD • CINCINNATI, OHIO 45228 • TEL 513-321-5816

"AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC, AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS, AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS, OR EXTRACTS FROM OR REGARDING OUR REPORTS IS RESERVED PENDING OUR WRITTEN APPROVAL."

## TEST BORING REPORT

Page 1 of 2

CLIENT Albert Skinner ORDER No. 2150.4  
PROJECT Skinner Landfill, West Chester, Ohio HOLE No. 1  
LOCATION As shown on plan  
DRILLER J. Mitchell DRILL No. 33 DATE STARTED 7-29-76

ELEVATION REFERENCE \_\_\_\_\_ DATE COMPLETED 7-29-76  
CASING: DIAMETER 3.25" I.D. Hollow Stem Auger HAMMER WT. \_\_\_\_\_ FALL \_\_\_\_\_  
SAMPLER: DIAMETER & TYPE 2.0" O.D. Split Spoon HAMMER WT. 140# FALL 30"  
DEPTH TO WATER: IMMEDIATE None UPON COMPLETION None  
DEPTH TO WATER DAYS AFTER COMPLETION Backfilled WATER USED IN DRILLING No

ELEVATION	DEPTH 0'	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 5" ON SAMPLER <small>(or 7.5 Core Rec.)</small>	Recovery
	2.0'	Brown and gray silty clay with a trace of organics, moist - stiff to very stiff	1	0-1.5	SS	3-4-6	18"
	2.0'	6.0'	2	2.5-4	SS	3-5-9	16"
			3	5-6.5	SS	12-17-19	9"
			4	7.5-9	SS	12-18-16	6"
	8.0'	2.0'					
		Brown clayey fine to medium sand and fine to coarse gravel, (limestone pebbles), moist - dense					
	10.0'	2.9'	5	10-11.5	SS	21-9-8	12"
		Brown sandy silt with fine to coarse gravel, (limestone pebbles) and clay seams, moist - medium dense	6	12.5-13	SS	23	4"
	12.9'						

RE AS:

Respectfully submitted,

THE H. C. NUTTING CO.

Samples recovered from this test boring are available for inspection, which is strongly recommended. The company assumes no responsibility for interpretations made by others of load bearing, stability, excavation or other physical characteristics.

PROJECT Skinner Landfill, West Chester, OhioHOLE No. 1

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 5" ON SAMPLER or % Core Rec.	Recovery
	12.9'						
	16.5'	3.6' Brown fine to coarse sand and gravel, moist - very dense	7 8	13-14 15-16.5	SS SS	50-39 16-25-26	10" 18"
		BORING COMPLETED					



# THE H. C. NUTTING COMPANY

GEOTECHNICAL AND TESTING ENGINEERS

SINCE 1921

4120 AIRPORT ROAD • CINCINNATI, OHIO 45228 • TEL. 513-321-5818

"AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC, AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS, AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS, OR EXTRACTS FROM OR REGARDING OUR REPORTS IS RESERVED PENDING OUR WRITTEN APPROVAL."

## TEST BORING REPORT

8/18/76-dn  
Page 1 of 2

CLIENT Albert Skinner ORDER No. 2150.4

PROJECT Skinner Landfill, West Chester, Ohio HOLE No. 2

LOCATION As shown on plan

DRILLER B. Ford DRILL No. 32 DATE STARTED 7-29-76

ELEVATION REFERENCE \_\_\_\_\_ DATE COMPLETED 7-29-76

CASING: DIAMETER 2.25" I.D. Hollow Stem Auger HAMMER WT. FALL

SAMPLER: DIAMETER & TYPE 2.0" O.D. Split Spoon HAMMER WT. 140# FALL 30"

DEPTH TO WATER: IMMEDIATE None UPON COMPLETION None

DEPTH TO WATER \_\_\_\_\_ DAYS AFTER COMPLETION Backfilled Upon WATER USED IN DRILLING No

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 5" ON SAMPLER or % Core Rec.	Recovery
	0'						
	2.5'	2.5' Brown sandy silty clay with fine gravel and limestone fragments, (fill), moist - soft	1	0-1.5	SS	1-3-3	6"
	2.5'	2.5' Brown and black silty clay with organics, (topsoil and fill), moist - soft	2	2.5-4	SS	3-3-4	13"
	5.0'	2.5' Brown and gray silty clay, (fill), moist - stiff	3	5-6.5	SS	4-5-5	18"
	7.5'	5.0' Brown and gray silty clay with fine to coarse sand and gravel, (odor detected, possible fill), moist - stiff	4 5	7.5-9 10-11.5	SS SS	8-14-15 6-6-6	18" 18"
	12.5'						

REMARKS:

Soil samples recovered from this test boring are available for inspection, which is highly recommended. The company assumes no responsibility for interpretations made by others of load bearing, stability, excavating or other physical characteristics of materials penetrated in the boring.

Respectfully submitted,  
THE H. C. NUTTING CO.

PROJECT Skinner Landfill, West Chester, OhioHOLE No. 2

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER OF 1/2 CORE REC.	Recovery
	12.5'						
		2.5' Brown sandy silty clay with fine gravel, (odor detected, possible fill), moist - stiff	6	12.5-14	SS	6-8-10	18"
	15.0'	1.5' Brown silty fine to medium sand with silt seams and coarse sand, moist - medium dense	7	15-16.5	SS	7-8-13	18"
	16.5'						
		BORING COMPLETED					





# THE H. C. NUTTING COMPANY

GEOTECHNICAL AND TESTING ENGINEERS

SINCE 1921

4120 AIRPORT ROAD • CINCINNATI, OHIO 45226 • TEL. 513-321-5316

"AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC, AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS, AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS, OR EXTRACTS FROM OR REGARDING OUR REPORTS IS RESERVED PENDING OUR WRITTEN APPROVAL."

## TEST BORING REPORT

8/18/76-dn  
Page 1 of 2

CLIENT Albert Skinner ORDER No. 2150.4  
PROJECT Skinner Landfill, West Chester, Ohio HOLE No. 3  
LOCATION As shown on plan  
DRILLER J. Mitchell DRILL No. 33 DATE STARTED 7-29-76

ELEVATION REFERENCE \_\_\_\_\_ DATE COMPLETED 7-29-76  
CASING: DIAMETER 3.25" I.D. Hollow Stem Auger HAMMER WT. \_\_\_\_\_ FALL \_\_\_\_\_  
SAMPLER: DIAMETER & TYPE 2.0" O.D. Split Spoon HAMMER WT. 140# FALL 30"  
DEPTH TO WATER: IMMEDIATE Wat. seam @ 13.5' UPON COMPLETION None  
DEPTH TO WATER \_\_\_\_\_ DAYS AFTER COMPLETION Backfilled Upon WATER USED IN DRILLING No

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER or 1/2 Core Rec.	Recover
	0'						
		5.0' Brown clayey fine to coarse sand, gravel and limestone fragments, moist - medium dense to dense	1 2	0-1.5 2.5-4	SS SS	14-13-11 29-19-21	16' 10'
	5.0'	2.0' Brown clayey fine to coarse sand, gravel and limestone fragments, moist - very dense	3	5-6.5	SS	25-40-26	15'
	7.0'	3.0' Brown fine to coarse sand and gravel, moist - dense	4	7.5-9	SS	15-16-20	16"
	10.0'	1.0' Brown and gray clayey fine to coarse sand and limestone fragments, moist - dense	5	10-11.5	SS	10-15-22	12"
	11.0'						

MARKS:

Samples recovered from this test boring are available for inspection, which is strongly recommended. The company assumes no responsibility for interpretations made by others of load bearing, stability, excavating or other geotechnical data.

Respectfully submitted,

THE H. C. NUTTING CO.

PROJECT Skinner Landfill, West Chester, Ohio

Page 2 of 2

HOLE No. 3

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER OR 1/2 LIRE HED.	Recovery
	11.0'						
	12.5'	1.5' Gray till with gravel, moist - stiff, (driller's break, not enough sample to check).					
	13.5'	1.0' Brown sandy silt and fine to coarse gravel with limestone fragments, moist - medium dense	6	12.5-13.5	SS	7-8	6"
	14.0'	0.5' Brown clayey fine sand with fine gravel, moist - medium dense	7	13.5-14	SS	10	
		BORING COMPLETED					



# THE H. C. NUTTING COMPANY

GEOTECHNICAL AND TESTING ENGINEERS

SINCE 1921

4120 AIRPORT ROAD • CINCINNATI, OHIO 45228 • TEL. 513-321-5316

"AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC, AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS, AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS, OR EXTRACTS FROM OR REGARDING OUR REPORTS IS RESERVED PENDING OUR WRITTEN APPROVAL."

## TEST BORING REPORT

8/18/76-dn  
Page 1 of 2

CLIENT Albert Skinner ORDER No. 2150.4  
PROJECT Skinner Landfill, West Chester, Ohio HOLE No. 4  
LOCATION As shown on plan

DRILLER B. Ford DRILL No. 32 DATE STARTED 7-29-76

ELEVATION REFERENCE \_\_\_\_\_ DATE COMPLETED 7-29-76

CASING: DIAMETER 2.25" I.D. Hollow Stem Auger HAMMER WT. \_\_\_\_\_ FALL \_\_\_\_\_

SAMPLER: DIAMETER & TYPE 2.0" O.D. Split Spoon HAMMER WT. 140# FALL 30"

DEPTH TO WATER: IMMEDIATE None UPON COMPLETION None

DEPTH TO WATER \_\_\_\_\_ DAYS AFTER COMPLETION Backfilled Upon WATER USED IN DRILLING No

ELEVATION	DEPTH 0'	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER or 1/2 Core Sec.	Recovery
		2.5' Brown silty sandy clay, moist - medium stiff	1	0-1.5	SS	3-4-4	14"
	2.5'	2.5' Brown sandy silty clay with fine to coarse gravel, moist - soft	2	2.5-4	SS	5-9-9	18"
	5.0'	2.5' Brown clayey fine to coarse sand and gravel, moist - medium dense	3	5-6.5	SS	5-5-8	13"
	7.5'	2.5' Brown sandy silty clay with fine gravel and limestone fragments, moist - stiff	4	7.5-9	SS	9-15-17	18"
	10.0'	2.5' Brown fine to coarse sand and gravel with a trace clay, moist - medium dense	5	10-11.5	SS	6-9-11	18"
	12.5'						

REMARKS:

Samples recovered from this test boring are available for inspection, which is strongly recommended. The company assumes no responsibility for interpretations made by others of load bearing, stability, excavation or other physical characteristics of soil.

Respectfully submitted,  
**THE H. C. NUTTING CO.**

PROJECT Skinner Landfill, West Chester, OhioHOLE No. 4

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	STROKS PER 5" ON SAMPLER or % Core Rec.	Rec
	12.5'						
	14.0'	1.5' Brown sandy silty clay with fine gravel and limestone fragments, moist - medium stiff	6	12.5-14	SS	10-19-23	
		BORING COMPLETED					



# THE H. C. NUTTING COMPANY

GEOTECHNICAL AND TESTING ENGINEERS

SINCE 1921

4120 AIRPORT ROAD • CINCINNATI, OHIO 45226 • TEL. 513-321-5816

"AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC, AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS, AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS, OR EXTRACTS FROM OR REGARDING OUR REPORTS IS RESERVED PENDING OUR WRITTEN APPROVAL."

## TEST BORING REPORT

8/18/76-dn

CLIENT Albert Skinner ORDER No. 2150.4  
PROJECT Skinner Landfill, West Chester, Ohio HOLE No. 5  
LOCATION As shown on plan  
DRILLER J. Mitchell DRILL No. 33 DATE STARTED 7-29-76

ELEVATION REFERENCE \_\_\_\_\_ DATE COMPLETED 7-29-76  
CASING: DIAMETER 3.25" I.D. Hollow Stem Auger HAMMER WT. \_\_\_\_\_ FALL \_\_\_\_\_  
SAMPLER: DIAMETER & TYPE 2.0" O.D. Split Spoon HAMMER WT. 140# FALL 30"  
DEPTH TO WATER: IMMEDIATE None UPON COMPLETION None  
DEPTH TO WATER DAYS AFTER COMPLETION Backfilled Upon WATER USED IN DRILLING No

ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	SAMPLE No.	SAMPLE DEPTH	TYPE OF SAMPLE	BLOWS PER 5" ON SAMPLER <small>or % Core Rec.</small>	Recovery
	0'						
	2.0'	2.0' Brown sandy silty clay with fine gravel and limestone fragments, moist - medium stiff	1	0-1.5	SS	6-4-5	10"
	2.0'	2.0' Brown sandy silty clay, moist - stiff to very stiff	2	2.5-4	SS	3-4-6	18"
	4.0'	1.0' Brown sandy silty clay, moist - stiff, (driller's break, no sample)					
	5.0'	4.0' Brown clayey fine to coarse sand, gravel and limestone fragments, moist - medium dense	3 4	5-6.5 7.5-9	SS SS	8-9-17 10-16-11	8" 16"
	9.0'						

BORING COMPLETED

Respectfully submitted,

THE H. C. NUTTING CO.

Samples recovered from this test boring are available for inspection, which is strongly recommended. The company assumes no responsibility for interpretations made by others of load bearing, stability, excavating or other physical characteristics of materials penetrated in the boring.

APPENDIX D  
FEASIBILITY STUDY ACTIVITIES 5-8

## Activity 5 - Evaluation of Remedial Action Alternatives

### Task 5-1 - Development of Potential Remedial Alternatives.

Based on the work completed in the remedial investigations, a list of potential remedial actions will be developed. The no action alternative will be included in the evaluation as a baseline alternative. It may be a viable alternative if potential remedial actions present a greater danger than the identified hazard itself, if an appropriate engineering solution is not available, or if cost-effectiveness dictates.

Task 5-2 - Develop Screening Criteria. Screening criteria will be prepared to assess the remedial action alternatives. The factors addressed in developing the screening criteria include:

- o Environmental Effects. The adverse impacts of the alternatives, the adequacy of source control, and the degree of mitigation of danger to public health and welfare and the environment will be identified. Included in the criteria will be permit requirements, institutional issues (e.g., implementability).
- o Engineering. The alternative must be technically feasible regarding site location and conditions. It must be applicable to the project needs, and must be a reliable method of solving the problem.
- o Economic. The capital and long-term operational and maintenance (O&M) costs are estimated and a present worth value determined for cost comparison of alternatives.

The identified remedial action alternatives will be screened according to these criteria, and a report will be prepared summarizing the screening process.

Task 5-3 - Additional Engineering Studies. After screening the remedial action alternatives for further evaluation, the project team will evaluate the field investigation studies completed during the remedial investigation. They will identify any additional engineering studies that are required to fully evaluate the cost, the constructibility, applicability, or reliability of any alternative. It has been assumed no additional engineering studies will be required.

Task 5-4 - Technology Assessment. Since treatment or disposal of soils, sediments, groundwater, or surface water is a potential remedial action alternative at the site, a technical assessment of treatment options will be conducted.

A report will be prepared documenting the results of a literature search and technology assessment, and present the conclusions regarding the applicability of various technologies. One or more technologies may be identified for further evaluation.

Task 5-5 - Refine Alternatives. Based on all the available data, the remaining alternative remedial actions will be refined and more fully developed. A detailed written description of each alternative, basic component diagrams for each alternative to be considered, major equipment needs and utility requirements, conceptual site layout drawings, and preliminary implementation schedule will be made. A report will be prepared presenting this information.

Task 5-6 - Environmental Assessment. The alternatives will be evaluated based on the environmental screening criteria developed. The comparative assessment will determine:

- o The adverse environmental impacts of the alternatives
- o The effectiveness of adverse impact mitigation measures
- o The adequacy of source control measures
- o The effectiveness of offsite control measures
- o The institutional and legal (environmental permits) constraints

Task 5-7 - Engineering Assessment. The engineering aspects of the alternatives will be assessed on the basis of acceptable engineering practices. The specific factors to be evaluated include:

- o Reliability
- o Established technology
- o Suitability to control the problem
- o Risks to construction and operational personnel health and safety
- o Constructibility and operability regarding site conditions
- o Maintainability and sensitivity to offsite upset
- o Offsite transportation and disposal capacity requirements

Task 5-8 - Economic Assessment. Construction and O&M costs will be estimated for each remedial action alternative. The comparative cost impacts of health and safety requirements on construction and continuing O&M will be included in the cost estimates. The cost estimates prepared for this task will be Order-of-Magnitude. A present worth analysis will be conducted. A report will then be prepared summarizing the findings and presenting the results of the environmental, engineering and economic assessments.



Task 5-9 - Comparative Ranking of Alternatives. During this task, the assessments will be compiled, the alternatives ranked within each assessment category, and overall rankings prepared. This ranking will be based on professional judgment and will reflect EPA, state, local and public input. A report will be prepared summarizing the comparative rankings.

Task 5-10 - Comparative Ranking Review Meetings. Review meetings will be held to solicit input into the comparative ranking of the remedial action alternatives. The review meetings should include both U.S. EPA and state personnel.

A report will be prepared summarizing the review process and the comments received.

Activity 6 - Alternative Remedial Actions Feasibility Report.

A draft report will be prepared summarizing data developed during the evaluation of alternatives and documenting the alternative remedial actions assessment process. On the basis of the entire evaluation process, one alternative or a combination of alternatives may be recommended for consideration in the conceptual design. This draft report will be submitted for review by the U.S and Ohio EPA.

Following receipt of written review comments and approval of the recommended remedial actions, the Alternative Remedial Actions Feasibility Study Final Report will be submitted. The final report incorporates the review comments and documents the state and EPA decision process.

Activity 7 - Conceptual Design

The conceptual design activity will be the mechanism by which the selected remedial alternative(s) are defined. The following scope of work addresses the conceptual design requirements, and provides additional data that will be needed to prepare a design consistent with the objectives of the proposed remedial actions. It is intended to be sufficient to allow preparation of an Order-of-Magnitude level cost estimate. It is recommended that the U.S. EPA be included in the review of work plans and work products during conceptual design activities.

Task 7-1 - Preparation of Conceptual Design Elements. The following conceptual design elements will be developed as required for the remedial actions selected.

- o A conceptual plan view drawing of the overall site, showing general locations for project actions and facilities

- o Conceptual layouts (plan and cross sectional views where required) for the individual facilities, other items to be installed, or actions to be implemented
- o Conceptual design criteria and rationale
- o A description of types of equipment required, including approximate capacity, size and materials of construction
- o Process flow sheets and a description of the process
- o A description of structural concepts for facilities
- o Utility requirements and rationale
- o An evaluation of potential construction problems, associated risks, and the proposed solutions
- o Right-of-way requirements
- o A description of technical requirements for environmental mitigation measures
- o Additional engineering data required to proceed with design
- o Construction permit requirements
- o Closure and long-term monitoring requirements and rationale
- o Performance standards to define the levels of clean-up required to complete the remedial action
- o Order-of-Magnitude implementation cost estimate
- o Order-of-Magnitude annual O&M cost estimates and duration of operating expenses
- o Preliminary project schedule

Task 7-2 - Supplementary Activities. To supplement the conceptual design and to assist in the design and implementation of the recommended remedial action, additional work may be required. Examples of some additional activities are:

- o Review the community relations and environmental impacts of the remedial actions.
- o Prepare a project schedule.
- o Refine environmental permit and institutional requirements.

Task 7-3 - Preparation of Draft Report. A draft report summarizing conceptual design data and information will be prepared and submitted for review by the U.S. and Ohio EPA.

Task 7-4 - Draft Report Review. A draft report review meeting will be scheduled and review comments will be discussed.

Task 7-5 - Preparation of Final Conceptual Design Report. After receipt of written review comments, the draft report will be finalized and submitted for approval.

#### Activity 8 - Project Management

This activity occurs throughout the remedial investigation/feasibility study. General tasks of this activity include establishment of project records; review meetings with U.S. EPA and State Agency; preparation of monthly reports; ongoing monitoring of staffing, budgets, contractor performance, and maintaining quality assurance programs.

GLT418/13